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...Journal...

OF THE

# West Australian Natural History Society

WITH WHICH IS INCORPORATED

The Mueller Botanic Society.

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# Additions to the West Australian Flora.

By W. V. FITZGERALD, F.S.Sc., Lond., F.R.H.S., Engl.

## I.

### Species hitherto Undescribed.

#### FRANKENIACEÆ.

##### FRANKENIA SETOSA, Sp. nov.—

**A** RIGID dichotomously branched shrub of 1-2 feet high; branches, young foliage and calyxes invested with short bristly recurved or hooked hairs. Leaves opposite, fascicled, linear-terete, 3-4 lines long, obtuse, conspicuously petiolate, glabrous and punctate, the margins closely revolute, showing only a dorsal furrow, the sheath abbreviated and ciliate. Flowers numerous in compact terminal leafy heads, sessile; floral leaves similar to those of the stem. Calyx slender, about 3 lines long. Petals white, rather long, the laminæ obovate, emarginate, tapering into long slender claws. Filaments free, flattened; anthers reddish-purple. Ovary 2-ovulate, a solitary ovule to each placenta; style branches 2.

*Locality*.—Gwalia, amongst Chenopodiaceæ, Nov. 1903. W.V.F.

*Remarks*.—In a living state the branchlets and foliage appear to be thickly covered with glistening papillæ, which are in reality small nodules of salt. In drying these disappear, and give to the foliage its punctate character.

The new species is closely allied to *F. glomerata*, Turcz., differing principally in the almost strigose pubescence and in the biovulate ovary and 2-branched style.

#### STERCULIACEÆ.

##### LASIOPETALUM ANGUSTIFOLIUM, Sp. nov.—

An erect shrub, with tender branches, attaining a height of 3-5 feet, the branchlets invested with a close brownish tomentum, the young shoots ferruginous. Leaves opposite, linear to linear-lanceolate, obtuse, cordate, shortly petiolate, margins recurved, glabrous above

when full grown, white-tomentose beneath, midrib prominent, mostly 3-4 inches long. Flowers rather small, not numerous, in pedunculate reflexed, glandular, stellate-hairy cymes. Peduncles  $\frac{3}{4}$ -1 inch long. Bracteoles 3, linear, tomentose or hirsute, rarely equalling the calyx. Calyx-lobes pink, lanceolate, acuminate, hairy without, glabrous within,  $2\frac{1}{2}$ -3 lines long. Petals ovate, minute. Anthers on very short filaments, oblong, cordate, opening in oblique pores. Ovary densely white tomentose, 4-celled (in fl. examined); style closely-invested with reflexed white hairs, the tip glabrous.

*Locality*.—Geraldton, Sept. 1903.—W. V. F.

*Remarks*.—This sp. cannot be distinguished from *L. oppositifolium*, F. v. M., without an examination of the ovary and style. It closely approaches *L. rosmarinifolium*, Benth., differing principally in the longer cordate opposite leaves and smaller flowers.

## LEGUMINOSÆ.

### OXYLOBIUM KELSOL, Sp. nov.—

Ashrub, quite glabrous or the young shoots and inflorescence sericeous. Leaves sub-opposite or alternate, ovate to ovate-lanceolate, mucronate, 1-1 $\frac{1}{2}$  inch long, tapering into a petiole of 3 lines long, glabrous, of thin but coriaceous texture, prominently reticulated, the margins flat, nerve-like, repand or crenulated. Stipules dark-brown, setaceous, about 1 line long. Flowers rather large, numerous in a terminal pyramidal raceme of 2 inches in length, on a peduncle half as long. Pedicels  $\frac{1}{2}$  line long, sericeous. Bracteoles setaceous, caducous. Calyx nearly 3 lines long, the tube scantily sericeous without, glabrous within; lobes short, deltoid, obtuse, the upper ones connate higher up, slightly sericeous without and within, ciliate with short white crisped hairs. Standard yellow, at least twice as long as the calyx,  $\frac{1}{2}$  inch broad, slightly emarginate; wings yellow and along with the purple keel much shorter than the standard. Ovary tomentose, on a stipes of 2 lines in length, 6-ovulate; style much thickened; stigma terminal. Pods not seen.

*Locality*.—Coolgardie district.—E. Kelso.

*Remarks*.—This species does not appear to have any immediate ally. It approaches somewhat *O. parviflorum*, Benth., but has very different leaves, stouter inflorescence, larger flowers, and constantly 6-ovulate ovary. In aspect it bears some resemblance to *Gastrolobium grandiflorum*, F. v. M.

The new plant is named after the original discoverer, Mr. E. Kelso, forest officer, stationed at Coolgardie.

**SWAINSONIA PARADOXA, Sp. nov.—**

An annual (or perennial of short duration), the stems ascending or erect, slightly flexuose, mostly about 6 inches long, glabrous or with a few closely appressed hairs. Leaflets 5-7, obovate or cuneate, somewhat succulent and glabrous or sparingly invested with appressed white hairs, 3-6 lines long. Stipules small but comparatively broad, entire. Fl. purple, of moderate size, not numerous, racemose on a peduncle much exceeding the leaves. Bracts and bracteoles small, linear. Pedicels about 1 line long. Calyx scantily invested with appressed white hairs without, glabrous within, about 2 lines long, the lobes about  $\frac{1}{3}$  shorter than the tube, densely ciliate. Standard 3-4 lines long and as broad, without apparent callosities; wings narrow-obovate, slightly shorter than the standard; keel about as long as the wings, much incurved, obtuse. Ovary silky-hairy, usually 6-ovulate; style slender, much incurved and hooked at the apex. Pod shortly stipitate, glabrous or scantily pubescent, ovate, very thick and hard, with irregularly curved longitudinal ridges and protuberances, 6-8 lines long by 3-4 lines diameter, dorsal suture slightly keeled, ventral suture irregularly channelled, divided into 2 by a complete longitudinal dissepiment, when ripe forming 2 separate 3-seeded hemicarpeles.

*Locality*.—Nannine, growing in sand along margin of salt lake, Sept., 1903.—W. V. F.

*Remarks*.—Differs principally from *S. occidentalis*, F. v. M., in fewer leaflets, standard without callosities, and in the peculiar woven numerous-seeded pod. From *S. Drummondii*, Benth., besides differing in the leaves and pod, the keel not spirally beaked distinguishes it.

**ACACIA COMANS, Sp. nov.—**

A low spreading shrub 1-1 $\frac{1}{2}$  feet high. Branches stout, terete, and along with the phyllodia more or less invested with rigid white hairs. Phyllodia ovate-lanceolate or somewhat triangular, unequilateral, the lower margin terminating in a short pungent point, the upper margin convex, with or without a small gland above the middle, attached by a broad base, divaricate and very rigid, 2-3 lines long, 1-1 $\frac{1}{2}$  lines broad, with 3-4 prominent nerves and nerve-like margins. Stipules small, setaceous, caducous. Peduncles solitary or 2 together, slender, glabrous, 3-4 lines long, bearing each a globular head of 30-40 mostly 5-merous flowers of a deep yellow color. Sepals free or slightly connate at the base, linear-spathulate, hirsute, half as long as the petals. Petals connate to above the middle, hispid, with rather prominent mid-ribs. Ovary glabrous; style rather long and much twisted. Pod not seen.

*Locality*.—Arrino, Sept. 1903.—W. V. F.

*Remarks*.—Allied to *A. latipes*, Benth., differing in the presence of indumentum, smaller phyllodia, hirsute flowers and ribbed petals.

**ACACIA ANDREWSII, Sp. nov.**—

A divaricately branched shrub of about 2 feet in height, young shoots slightly pubescent, otherwise glabrous, branchlets hardly angular, not spinescent. Phyllodia linear-lanceolate, straight or falcate, tapering into pungent points, hardly attenuated at the base, mostly 4-6 lines long, rigid, the upper edge with thick raised nerve-like margins, the midrib excentric, close to the lower edge. Stipules short, divaricate, pungent, persistent. Peduncles solitary, slender, often sparingly hirsute, 3-5 lines long, bearing each a globular head of about 30 small flowers, mostly 5-merous. Sepals free to the base, linear-spathulate, ciliate,  $\frac{2}{3}$  as long as the petals. Petals connate to the middle, glabrous, with an evident midrib. Pod linear, falcate, shortly pointed, sparingly hirsute, flat but thick, sutural nerves prominent, 2-2 $\frac{1}{2}$  inches long, 1 $\frac{1}{2}$ -2 lines broad, not contracted between the seeds. Seeds longitudinal, oblong, brown; funicle short, rather thick, terminating in a turbinate slightly laterally basilar arillus.

*Locality*.—Watheroo, fl. August, 1903.—C. R. P. Andrews; Wurarga, fr. Sept., 1903.—W. V. F.

*Remarks*.—This species has almost the foliage of *A. costata*, Benth., but differs in the branches being neither striate nor spinescent, the stipules spinescent, flowers more numerous in the head, sepals not acute, and petals not striate. On the pod of the latter becoming known other differences may be observed.

Some specimens alluded to by Benth., under *A. costata* and *A. ingrata*, probably belong to this and the following species.

Named in honour of Mr. C. R. P. Andrews, Inspector-general of Schools, who first brought the species under my notice.

**ACACIA ACUTATA, Sp. nov.**—

An erect finely scabrous shrub of 2 feet in height, with numerous short rigid, striate spinescent branches. Phyllodia divaricate, linear-lanceolate or almost obliquely subulate, tapering into pungent points, hardly attenuated at the base, rigid, the upper edge convex, thick and nerve-like, the midrib very prominent, excentric, but slightly removed from the lower margin, gland at or below the middle, rarely obsolete. Stipules small, caducous. Peduncles solitary, shorter than the phyllodia, bearing each a globular head of about 15 flowers, mostly 5-merous. Bracts broadly ovate, obtuse, membranous, very concave, faintly striate and ciliate. Calyx turbinate, membranous, shortly and broadly lobed, ciliate, at least half as long as the petals. Petals shortly connate or readily becoming free, thin, acute, smooth, with an evident midrib. Ovary glabrous; style excentric. Pod shortly stipitate, linear, 1 $\frac{1}{2}$  lines broad, contracted between the seeds; valves convex over the seeds, thinly coriaceous. Seeds longitudinal, oblong; funicle filiform,



thickened unilaterally half way down the seed into a clavate basilar arillus.

*Locality*.—Cunderdin, August, 1903.—W. V. F.

*Remarks*.—The diagnosis of the pod and seed was made from an imperfect specimen, and will probably require revision when more perfect material becomes available. The new plant differs from *A. costata*, Benth., slightly in phyllodia, in conspicuous bracts, broad obtuse calyx-lobes and petals not being striate. As the inflorescence and flowers bear a resemblance to those of *A. divergens*, Benth., probably the specimens alluded to under *A. costata* by that writer belong to the new species.

**ACACIA ACUARIA, Sp. nov.**—

A rigid shrub of spreading or straggling habit, attaining a height of 2-4 feet. Branches slightly angular, glaucous and glabrous, divaricate and ending in spines. Phyllodia subulate, tapering into straight pungent points, spreading, 6-8 lines long, 1-nerved, the gland about the centre of the upper margin or obsolete. Stipules oblong, membranous, caducous. Peduncles solitary or in pairs, slender, 3-6 lines long, bearing each a globular head of about 20 rather small mostly 5-merous flowers. Calyx turbinate, shortly and broadly lobed, slightly ciliate, half as long as the petals. Petals shortly connate at the base, glabrous, with prominent midribs. Ovary glabrous. Pod much incurved or somewhat twisted,  $1\frac{1}{2}$ -2 inches long,  $2\frac{1}{2}$  lines broad, glabrous, contracted between the seeds; valves compressed, convex over the seeds, thinly coriaceous. Seeds longitudinal obovate, dark-brown; funicle slender, straight or shortly once folded and then abruptly thickened into a pale-colored almost basilar boat-shaped arillus which extends unilaterally to half the length of the seed.

*Locality*.—Cunderdin, fl. Aug., fr. Nov. 1903; Mingenew, fl. Sept. 1903.—W. V. F.

*Remarks*.—Resembles some forms of *A. genistoides*, A. Cgh, but the phyllodia and peduncles are shorter; stipules of a different shape; flowers fewer, the calyx not divided to the base, the pod is almost that of the species, but the funicle seed and arillar appendage are quite different. It is still further removed from *A. sphacelata*, Benth.

**ACACIA EXOCARPOIDES, Sp. nov.**

A rigid much-branched shrub of 6 feet or more in height, more or less scurfy. Branchlets cylindrical, rigid, short, striate, contracted at the base and often ending in thorns, very pithy within. Phyllodia (only present on young shoots) subulate with acute incurved points, or terete and straight-pointed, with 4-5 longitudinal raised lines, much contracted at the base,  $\frac{1}{2}$ -1 inch long. Stipules subulate, membranous,

caducous. Peduncles solitary, arising from the base of the young shoots, about  $\frac{1}{2}$ -inch long, bearing each a globular head of 20 or more 5-merous flowers. Sepals connate at the base, linear or linear-spathulate, slightly ciliate,  $\frac{1}{3}$  as long as the petals. Petals connate to  $\frac{2}{3}$  of their length, obtuse, faintly hispid and prominently keeled. Pod (only seen young) linear, flat, shortly hirsute.

*Locality*.—Between Lennonville and Boogardie, Sept. 1903.—W. V. F.

*Remarks*.—Without flowers this remarkable species would be readily passed by as *Exocarpos aphylla*, R.Br. The material available is too scanty and incomplete to determine its position amongst the other Calamiformes.

**ACACIA TRATMANIANA, Sp. nov.**—

An erect twiggy shrub of 6 feet in height, the branchlets sulcate-striate, slightly tomentose, and along with the phyllodia very viscid. Phyllodia filiform, subulate, obtusely 4-angled from the presence of 4 prominent longitudinal nerves, straight or flexuose, with often curved points, mostly about 2 inches long. Flower-heads globular, sessile, solitary or rarely two together, containing 20-25 4-merous flowers. Bracts convex, spatulate, hirsute. Calyx broadly turbinate, hispid, nearly half as long as the petals, divided to one-third of its length into spatulate lobes. Petals connate to one-third of their length, very spreading, glabrous, with prominent midribs. Ovary densely tomentose. Pod not seen.

*Locality*.—Cunderdin, August 1903.—W. V. F.

*Remarks*.—Whilst fruits are unknown this species only differs from *A. ephedroides*, Benth., in the viscid nature of the branchlets and phyllodia, and in the globose and not spicate inflorescence. It may ultimately prove to be only a viscid form of that species with a reduced inflorescence, but neither in specimens of Bentham's plant as examined by me nor in descriptions of other examples can I find any allusion to its viscosity or reduction of the spicate inflorescence.

Named out of compliment to Dr. Frank Tratman, M.D., President of the West Australian Natural History Society.

**ACACIA XEROPHILA, Sp. nov.**—

A glabrous shrub of 2-3 feet in height; branches rigidly divaricate, terete and flexuose. Phyllodia lanceolate, straight or falcate, tapering to a pungent point, attenuated at the base, very rigid, about 1 inch long, 2-2 $\frac{1}{2}$  lines broad, with a prominent, slightly excentric nerve and nerve-like margins, gland usually obsolete. Stipules rigidly spinescent, persistent, divaricate, or recurved, often 2 lines long. Peduncles solitary or two together, 2-3 lines long, each bearing a globular head of 20 or more mostly 5-merous flowers. Calyx turbinate, shortly lobed,

slightly hispid, half as long as the petals. Petals free or shortly connate at the base, hispid, the centres thickened towards the tips, but without evident midribs. Ovary comparatively large, slightly tomentose. Pod not seen.

*Locality*.—Bardoc, July, 1899.—W. V. F.

*Remarks*.—The phyllodia and stipules bear a rather close resemblance to those of some forms of *A. nervosa*, De Cand., but the flowers are very different.

**ACACIA SERICOCARPA, Sp. nov.**—

A rigid shrub of 2-3 feet in height, with spreading terete woolly-pubescent branches, the young foliage woolly-tomentose, becoming glabrous with age. Phyllodia obliquely ovate, obovate or lanceolate-falcate, with a short curved or straight acute point, varying from  $\frac{1}{3}$ -1 inch long, 3-3 $\frac{1}{2}$  lines broad, undulate, rigid, but not thick, with a not very prominent central nerve and occasionally a second fainter one, gland at or above the middle or obsolete. Stipules suppressed. Peduncles solitary, in pairs or clusters of 3 or more, 2-3 lines long, bearing each a globular head of about 20 mostly 5-merous flowers. Bracts ovate-lanceolate, sericeous. Sepals free, linear spatulate, ciliate,  $\frac{1}{3}$  as long as the petals. Petals connate below the middle but separating readily, glabrous, very thin, with a dark-coloured mid-rib. Pod much twisted or spirally coiled, linear, compressed but rather thick, sericeous, hardly or not all contracted between the seeds. Seeds longitudinal, oblong-elliptical, black; funicle slender, with several folds, terminating in an obliquely cupular orange-colored basilar arillus, nearly half as long as the seed.

*Locality*.—Cunderdin, fl Aug., fr. Nov. 1903.—W. V. F.

*Remarks*.—Differs from *A. congesta*, Benth., somewhat in phyllodia, fewer flowers in the head, comparatively shorter sepals, ribbed petals and in the pod. It is closely allied to *A. Merrallii*, F. v. M., but the latter species is almost or quite glabrous, the margins of the phyllodia much thickened, the venation hardly discernible, flowers unknown. Carpologically the 2 species are very close.

**ACACIA DUBIA, Sp. nov.**—

A spreading shrub of 6-8 feet high; branches rather stout, scarcely angular, minutely silky-tomentose. Phyllodia ovate to obovate, thick and rigidly coriaceous, with a small oblique hooked point, tapering to the base into a short petiole, from  $\frac{1}{2}$ -1 inch long, 3-8 lines broad, 1-nerved, with prominent nerve-like margins sometimes slightly undulate, the gland at or below the middle. Stipules suppressed. Peduncles solitary or 2 together, slender, 3-4 lines long, each bearing a globular head of about 30 mostly 5-merous flowers. Sepals free, linear-spatulate, hispid, not half as long as the petals. Petals connate

to  $\frac{1}{3}$  of their length, but readily separating, hispid, with conspicuous midribs. Ovary glabrous. Pod not seen.

*Locality*.—Boulder, Sept. 1898.—W.V.F.

*Remarks*.—The phyllodia approach those of *A. Shuttleworthii*, Meiss., but the new plant differs from that species in the absence of stipules, in the more numerous flowers in the head, and in the free sepals. Notwithstanding these differences it may ultimately prove to be a form of Meissner's plant.

**ACACIA CLIFTONIANA, Sp. nov.**—

A shrub of about 2 feet in height, with rigid, almost terete divaricate spinescent branches, more or less invested with stiff, white often reflexed hairs. Phyllodia ovate to broadly cuneate, very oblique, shortly pungent-pointed, attenuate at the base, not very thick, undulate, somewhat scabrous, 3-5 lines long,  $1\frac{1}{2}$ -3 lines broad, 1-nerved, conspicuously pinnate-veined, the margins not prominent, gland above the middle or obsolete. Stipules short, stout, spinescent, persistent. Peduncles solitary, slender, scabrous, often recurved, mostly  $\frac{1}{2}$  inch long, bearing each a globular head of about 30 mostly 5-merous flowers. Bracts obovate. Sepals free, linear-spathulate, nearly glabrous, not half as long as the petals. Petals connate to the middle, but readily separating, slightly hispid, with scarcely prominent midribs. Ovary almost or quite glabrous. Pod not seen.

*Locality*.—Arrino, Sept. 1903.—W.V.F.

*Remarks*.—The phyllodia, when obliquely cuneate, are always dilated towards the apex on the upper side, where they occasionally terminate in a small gland; but normally the phyllodia are ovate-falcate and oblique, with the nerve excentric sometimes, but slightly removed from the lower margin, and terminating in a pungent point. In aspect, habit, and the structure of the flower the species closely approaches *A. congesta*, Benth., with the foliage of the Uninerves Triangulares, differing from all Western Australian members of that sub-series in having 5-merous flowers, in the free sepals, also in the more numerous flowers in the head.

Named out of compliment to Mr. R. C. Clifton, Under-Secretary for Lands for this State.

**ACACIA MOOREANA, Sp. nov.**—

An erect shrub of 1-1 $\frac{1}{2}$  feet high; branches slender, angular, striate and finely scabrous. Phyllodia rigid, somewhat triangular or trapeziform, at the apex often broader than long, varying from 3-4 lines long by 3-5 lines broad, the lower angle ending in a short pungent point, the upper obtuse and tipped with a small gland; margins nerve-like, median nerve rather prominent, some distance removed from the lower margin, and usually terminating above the pungent

point, one or two secondary fainter, ascendant. Stipules small, setaceous, persistent. Peduncles solitary, axillary, about 1 line long, bearing each a head of 4 flowers, glabrous, and apparently all 4-merous, remarkably acute in the bud. Calyx broadly turbinate, about  $\frac{1}{3}$  as long as the petals, lobed to about the middle, the lobes ending in rigid acute almost pungent black points. Petals free or shortly connate at the base, rigid, lanceolate, terminating in very acute points, midribs prominent. Ovary glabrous. Pod not seen.

*Locality*.—Capel River, June 1903.—W.V.F.

*Remarks*.—In aspect and phyllodia this species would be readily confounded with *A. biflora*, R. Brown, and its allies, but the flowers are very different.

Named in honour of Mr. Newton J. Moore, a well-known authority on West Australian forestry, and a member of the Royal Commission now dealing with that subject.

#### **ACACIA VERNICOSA, Sp. nov.—**

An undershrub usually not exceeding a height of 1 foot; branches erect or spreading, prominently angled or striate, pubescent. Phyllodia shining glabrous, cuneate or irregular triangular, obliquely truncate or bilobed at the apex, rigid, mostly 3-4 lines long, and as broad at the apex, but usually narrower, the principal nerve slightly removed from the lower margin, and ending in a short pungent point, a secondary nerve ascendant from near the base of the primary one, and terminating in a prominent gland-tipped angle on the upper margin. Stipules setaceous, persistent. Peduncles hirsute, solitary or in pairs, 3-6 lines long, bearing each a head of mostly 6 4-merous flowers. Calyx very short, slightly hispid; sepals rather narrow, ciliate, connate to the middle. Petals shortly connate, glabrous, with a hardly prominent midrib, but thickened and involute near the apex. Pod linear, falcate, flattened but thick and hard, glabrous, with prominent sutural margins, mostly  $1\frac{1}{2}$  inch long, 2 lines broad, slightly constricted between the seeds. Seeds longitudinal, ovate-oblong, shining greenish-grey; funicle slender, terminating in a small clavate basilar arillus.

*Locality*.—Midland Junction and vicinity, fl. July, fr. Oct. 1901. Serpentine, fl. Aug. 1902.—W.V.F.

*Remarks*.—Closely allied to but apparently distinct from *A. decipiens*, Benth., differing in habit, in being invariably hirsute, slightly in phyllodia, in the calyx and ribbed petals, shorter but comparatively broader pod and in the arillar appendage. Apparently Bentham did not examine any examples of this species.

#### **ACACIA FLABELLIFOLIA, Sp. nov.—**

A rigid shrub of  $1\frac{1}{2}$  ft. high; branches divaricate, conspicuously striate, invested with coarse white hairs and often spinescent. Phyllodia

broadly cuneate-triangular or flabelliform, rigid, undulate, mostly 3-6 lines long, and hardly as broad at the apex, the principal nerve slightly removed from the lower almost straight margin, and terminating in a slender pungent point, with several faint usually bifurcated nerves ascendant from the base, the upper angle rounded, rarely gland-bearing. Stipules setaceous or almost spinescent, hardly persistent. Peduncles usually solitary,  $\frac{1}{2}$  inch long, bearing each a globular head of 20 or more 5-merous flowers. Calyx turbinate, shortly and broadly lobed, ciliate, half as long as the petals. Petals free or shortly connate, glabrous, with prominent midribs. Pod (not mature) much twisted, glabrous, about 2 lines broad, constricted between the seeds; valves flat and thin.

*Locality*.—Arrino, Sept. 1903.—W.V.F.

*Remarks*.—Closely allied on the one side to *A. dilatata*, Benth., and on the other to *A. bidentata*, Benth., differing from both slightly in phyllodia, and essentially in the flowers. The latter are very near those of *A. acanthoclada*, F. v. M., differing in the comparatively shorter calyx, and usually free petals with apparent midribs.

#### ACACIA RIDLEYANA, Sp. nov.—

A spreading shrub of 1 1½ foot high, very hispid, with spreading white hairs, which rarely disappear from the older branches and phyllodia; branches cylindrical. Phyllodia linear-cuneate falcate, with an oblique short straight or slightly recurved pungent point, attenuated at the base,  $\frac{3}{4}$ -1 inch long, longitudinal nerves 3, prominent, the lateral ones close to the margin. Stipules setaceous, conspicuous, persistent. Peduncles solitary from  $\frac{1}{4}$ - $\frac{3}{4}$  inch long, bearing each a globular head of 20-30 mostly 5-merous flowers. Bracts linear, ciliate. Sepals free, linear-spathulate, ciliate, more than half as long as the petals. Petals connate to the middle, slightly hispid, with prominent midribs. Pods shortly stipitate, narrow-cylindrical, falcate, 1½-2 inches long, not contracted between the seeds; valves finely striate, very hispid. Seeds longitudinal or slightly oblique, ovate, brownish, mottled with a darker color; funicle rather long, filiform, twisted, not folded, terminating in an obtusely conical pale-colored basilar arillus.

*Locality*.—Mogumber, Nov. 1903.—W. V. F.

*Remarks*.—This new Acacia is named in compliment to Mr. H. N. Ridley, curator of the Botanic Gardens, Singapore. The shape of the phyllodia is that of *A. aspera*, Lind., but otherwise the species is very different.

#### ACACIA RESINOSTIPULEA, Sp. nov.—

A bushy shrub of about 10 feet high, and as much across, with numerous slender twiggy branches which are slightly angular and more or less invested with a whitish or dingy scarcely viscid pubescence.

Phyllodia greyish-green, rigid, unequilaterally lanceolate falcate, tapering into a short, rigid point, hardly attenuated at the base, 6-10 lines long,  $1\frac{1}{2}$ -2 lines broad, longitudinal nerves numerous, all faint, or one or two central ones more prominent, the curved upper margin nerve-like, with a conspicuous gland usually much above the middle. Stipules suppressed, the base of each phyllode subtended by a resinous globule. Peduncles solitary, 2-3 lines long, each bearing a globular head of numerous mostly 5-merous flowers. Sepals free, linear-spathulate, scantily ciliate, about half as long as the petals. Petals free or slightly connate, hispid, midrib not prominent. Ovary glandular tomentose. Pod (not seen quite ripe) linear, flexuose or laterally twisted, compressed with raised sutural margins, glandular-tomentose, about 2 inches long, hardly 1 line broad, not constricted between the seeds. Seeds longitudinal, oblong, dark-brown; funicle thickened and folded from the base, terminating in a broad membranous cupular pale-yellow basilar arillus.

*Locality*.—Nine miles north of Bullabulling, Nov. 1903.—W.V.F.

*Remarks*.—Allied to *A. Merrallii*, F. v. M., and *A. lineolata*, Benth., in leaf-venation, but with very differently shaped phyllodia. The flowers are almost those of the latter, with the pod of *A. stipulosa*, F. v. M., but in the new plant the seeds are always longitudinal whereas in *A. stipulosa* they are constantly oblique.

#### ACACIA MULTILINEATA, Sp. nov.—

A spreading shrub of 3-4 feet in height; branches at first angular, soon terete, finely pubescent, the young shoots silky hairy. Phyllodia oblanceolate to narrow-cuneate, falcate, undulate, coriaceous, obtuse or with a short straight points, lightly downy, mostly  $\frac{3}{4}$ -1 inch long, 2-2 $\frac{1}{2}$  lines broad, with numerous conspicuous longitudinal nerves. Stipules suppressed. Peduncles in pairs, 2-3 lines long, each bearing a globular head of 20-30 mostly 5-merous flowers. Sepals free to the base, spathulate, ciliate, not half as long as the petals. Petals free, slightly hispid, rather narrow, with inflexed tips and obscure midribs. Young pod narrow, white-tomentose.

*Locality*.—Arrino, sand plains. September 1903.—W. V. F.

*Remarks*.—Differs from *A. ixiophylla*, Benth., in not being glutinous, in the shape of the phyllodia, more numerous flowers in the head and probably in the pod.

#### ACACIA NEUROPHYLLA, Sp. nov.—

A diffuse much-branched shrub of 5-7 feet in height; branchlets angular, soon becoming terete, quite glabrous, or the young shoots glandular pubescent. Phyllodia linear-lanceolate, slightly falcate, shortly tapering into almost acute curved points, attenuated at the base, mostly 3-3 $\frac{1}{2}$  inches long, 2 $\frac{1}{2}$ -3 lines broad, rigid with about 7 promi-

ment longitudinal nerves, the central ones not more conspicuous than the others, the margins hardly thickened. Stipules small, ovate-lanceolate, viscid, ciliate, caducous. Spikes sessile, usually in pairs,  $\frac{3}{4}$ -1 inch long, densely flowered. Flowers 4-merous. Sepals free to the base, narrow-spathulate, ciliate, at least half as long as the corolla. Petals connate at the base, broadly ovate, glabrous with callous tips, midribs rather prominent. Ovary densely tomentose. Pod shortly stipitate, narrow-linear, straight or slightly falcate, glabrous, slightly contracted between the seeds, 3-4 inches long,  $1-1\frac{1}{2}$  lines broad; valves flat, somewhat convex over the seeds. Seeds longitudinal, oblong, dark-brown; funicle much twisted and thickened from the base, terminating in an obliquely turbinate pale-colored basilar arillus.

*Locality*.—Cunderdin, in fl. Aug. fr. Nov., 1903.—W. V. F.

*Remarks*.—Without the fruit this species cannot be distinguished from *A. cochliocarpa*, Meiss. In carpological characters it is very close to *A. acuminata*, Benth., but differs from that species and its immediate allies in phyllodia and in the apparently constantly 4-merous flowers.

**ACACIA RANDELLIANA, Sp. nov.—**

A diffuse shrub of 8-12 feet in height, with pale-coloured cylindrical branches. Phyllodia linear subulate, slightly flattened or almost terete, with slender recurved points, ciliate in the upper half with very fine woolly white hairs, 3-6 inches long,  $\frac{1}{2}$ - $\frac{3}{4}$  lines broad, striate, with many exceedingly fine parallel nerves, the central one slightly prominent. Spikes almost or quite sessile, oblong, solitary or 2 (rarely 3) together, 3-4 lines long. Flowers mostly 4-merous. Bracts broadly spathulate, convex, densely hirsute. Sepals connate below the middle, broad-spathulate, densely hirsute,  $\frac{2}{3}$  as long as the corolla. Petals free or nearly so, hirsute at the base, otherwise glabrous, with callous tips and obscure midribs. Ovary slightly hispid. Pod linear, straight or falcate, glabrous,  $2\frac{1}{2}$ -3 inches long, much constricted between the seeds, often almost moniliform; valves very convex over the seeds, otherwise compressed. Seeds longitudinal, globular, shining black; funicle thickened from the base, several times shortly folded and terminating in an obliquely boat-shaped pale-colored basilar arillus.

*Locality*.—Mount Malcolm, fl. July, 1899; 12 miles north-east of Kanowna, fr. Nov. 1903.—W. V. F.

*Remarks*.—Differs from *A. micromera*, Meiss. (of which fruiting specimens are unknown) principally in narrower less prominently nerved phyllodia and in the calyx; from *A. cyperophylla*, F. v. M., in the absence of the reddish curly bark, shorter somewhat flattened phyllodia, the 4-merous flowers, the shape of the calyx, and entirely in carpological characters.

Named in honor of Mr. S. J. Randell, to whom the writer is under obligation for many specimens of the native flora.



**ACACIA DURIUSCULA, Sp. nov.—**

A shrub with finely pubescent resinous cylindrical branchlets. Phyllodia linear to linear-lanceolate, straight or falcate, terminating in very obtuse points, attenuated into short stalklike bases,  $\frac{3}{4}$ -1 inch long, rigid, more or less invested with greyish hairlets, nerves numerous, parallel, inconspicuous. Stipules suppressed. Peduncles solitary, 2-3 lines long, bearing each a globular head of about 20 small flowers, mostly 5-merous. Bracts more than half as long as the calyx, linear-spathulate, the dark-colored tips ciliate. Calyx more than half as long as the petals, turbinate, shortly sinuately lobed, hispid with white hairs. Petals connate to nearly  $\frac{2}{3}$  of their length, glabrous, much reflexed on expansion, midribs not evident. Filaments hardly longer than the petals. Ovary glabrous, pod not seen.

*Locality.*—Coolgardie district.—E. Kelso.

*Remarks.*—As far as can be ascertained from the two small specimens transmitted, the new species differs from *A. ixiophylla*, Benth., chiefly in narrower phyllodia, solitary peduncles, the almost truncate calyx and connate petals. It is still further removed from *A. sclerophylla*, Lind., and *A. multilineata*, W. V. F.

**ACACIA RESINOMARGINEA, Sp. nov.—**

A glabrous shrub, branchlets angular, the angles margined with a crenulated resinous line. Phyllodia narrow-linear, straight with usually recurved callous points, 3-5 inches long,  $\frac{3}{4}$ -1 line broad, with numerous exceedingly fine parallel longitudinal nerves, the central one much raised, and along with the margins edged with a resinous crenulated or tuberculated line. Stipules suppressed. Spikes mostly solitary, 4-6 lines long, each on a peduncle of 2 lines long. Flowers mostly 5-merous. Bracts as long as the calyx, peltate, with a linear stalk-like base. Calyx broad, at least half as long as the petals, slightly sinuately lobed, densely invested with short crisped shining yellow hairlets. Petals connate to  $\frac{2}{3}$  of their length, glabrous, with prominent midribs, and somewhat thickened inflexed tips. Ovary sparingly sericeous. Pod not seen.

*Locality.*—Coolgardie district.—E. Kelso.

*Remarks.*—The new species, while fruits are unknown, differs from *A. Doratoxylon*, A. Cgh., in the resinous margined almost quadrangular phyllodia, the peltate bracts, proportionately longer hirsute calyx and less divided corolla.

**ACACIA RAMULOSA, Sp. nov.—**

An erect much-branched shrub of 6-10 feet in height, more or less minutely hoary, branchlets angular. Phyllodia long-linear, with straight or slightly curved callous points, rigid, thick but flat, 4-6 inches long, the numerous fine parallel nerves hardly conspicuous. Peduncles

solitary or in pairs, 6-9 lines long. Flowers not seen, but from the scars remaining were in spikes of  $\frac{1}{2}$  inch in length. Pod linear-cylindrical mostly 4-6 inches long, hardly or not at all contracted between the seeds, the valves striate, finely tomentose. Seeds longitudinal, oblong, shining dark-brown; funicle short, expanding into a small, somewhat cupular, pale-colored basilar arillus.

*Locality*.—Lennonville, Sept. 1903.—W. V. F.

*Remarks*.—This "Mulga" at sight, and without the pod cannot be distinguished from some forms of *A. aneura*, F. v. M. It is closely allied to the tropical *A. pityoides*, F. v. M., differing in shorter phyllodia, the pod not being flattened, and in the striate tomentose valves.

The incomplete nature of the descriptions of many members of this genus renders it extremely difficult to assign species to their true positions.

#### **ACACIA LINOPHYLLA, Sp. nov. —**

A bushy shrub of 10 feet in height, invested with a fine greyish tomentum; branchlets slender, acutely angular. Phyllodia long linear-terete, with straight obtuse points, mostly 4-6 inches long, longitudinal venules numerous. Peduncles solitary or in pairs, stout, 2-3 lines long. Flowers not seen, but from the scars appear to have formed an ovoid-cylindrical spike of  $2\frac{1}{2}$ -3 lines long. Pod shortly stipitate, thick and cylindrical, straight, about 3 inches long, not contracted between the seeds; valves almost woody, with numerous finely tomentose raised irregular longitudinal lines on the outside, pithy within. Seeds longitudinal or slightly oblique, ovate, shining black; funicle short, slender, terminating in a broad pale-colored basilar arillus.

*Locality*.—Cue, Mt. Magnet, Sept. 1903.—W. V. F.

*Remarks*.—One of the species commonly referred to as "Mulga." Carpologically close to the tropical *A. xylocarpa*, A. Cgh., apparently only differing in the less obliquity of the seeds, and in the arillus. The phyllodia, although of similar shape, are constantly plurinerved.

#### **ACACIA EUPHLEBA, Sp. nov.—**

An erect bushy shrub of 6-8 feet high, the branches and phyllodia invested with a greyish scurfy tomentum; young shoots slightly viscid; branches angular. Phyllodia ovate to broad-elliptical, shortly mucronate, 6-9 lines long, undulate, coriaceous, inconspicuously 3-nerved, densely reticulate between. Stipules obliterated. Peduncles solitary in the upper axils, sometimes becoming racemose through suppression of the phyllodia, stout, nearly  $\frac{1}{2}$ -inch long, each bearing a cylindrical spike of about the same length. Buds obtuse, tomentose. Neither expanded flowers nor fruits available.

*Locality*.—Milly's Soak, and Jack's Well, Sept. 1903; Gwalia, Nov. 1903.—W. V. F.

*Remarks*.—This *Acacia* constitutes one of the species vernacularly known as "Mulga." Owing to the young state of the inflorescence and the absence of fruits, the affinities of the species must for the present remain in doubt. The phyllodia, although of a different shape, are allied in venation to *A. dictyophleba*, F. v. M., or to that of some members of the *Dimidiatae*.

## MYRTACEÆ.

### DARWINIA ACEROSA, Sp. nov.—

A much spreading, densely branched, heath like, glabrous shrub of 1-1½ feet in height; branchlets whitish. Leaves scattered, crowded, narrow-linear triquetrous with very acute hooked or straight points, 3-5 lines long. Flower-heads sessile, nodding, dense, hemispherical, ½-¾ inch across, terminating short lateral branchlets. Involucral bracts numerous, in about 3 series, exceeding the flowers; the outer narrow-lanceolate, green, with pale membranous margins, mostly 4 lines long; inner ovate-lanceolate, green with purplish-red margins, slightly shorter than the outer series; all with acuminate somewhat squarrose tips and conspicuous midribs. Flowers very numerous, each on an exceedingly short pedicel, the broad receptacle entire. Bracteoles narrow-obovate or elliptical, as long as or slightly longer than the flower, very concave, pale-membranous, with a prominent brownish keel expanding upwards and then cristate or irregularly denticulate. Calyx about 1½ line long; of the adnate portion the lower is 5-ribbed and minutely papillose, the upper slightly 5-ribbed and with about 8 transverse rows of squamulous papillae; free portion slightly rugulose; lobes membranous, rounded, almost obsolete. Petals greenish-yellow, obtuse, about ¾ line long. Filaments compressed at the base, attenuated upwards; anthers yellow, globular. Staminodia linear clavate. Style scarlet, bearded below the stigma, hardly 3 lines long. Ovules 2.

*Locality*.—Mogumber, Nov. 1903.—W. V. F.

*Remarks*.—Allied to *D. virescens*, Benth., differing chiefly in the leaves being acute, bracts longer than the flowers, the innermost broader than the outer, in the shape and length of the bracteoles, smaller flowers and structure of the calyx. From the south-east West Australian *D. Luehmannii*, F. v. M. and Tate, it is still further removed. The foliage is almost that of *D. pinifolia*, Benth., and the calyx approximates that of *D. purpurea*, Benth.

**CALYTHRIX STIPULOSA, Sp. nov.—**

An erect glabrous much branched scrubby shrub of about 2-3 feet in height; branchlets short, greyish. Leaves spreading, ovate to narrow-ovate, thick and prominently keeled,  $\frac{3}{4}$ - $1\frac{1}{4}$  line long, obtuse or minutely apiculate, on distinct appressed petioles. Stipules setaceous, persistent as long as or slightly longer than the petioles. Flowers lilac, on pedicels of  $\frac{1}{2}$ - $\frac{3}{4}$  line long, below the ends of the branchlets. Bracteoles free to the base, linear-cuneate, mucronate, glabrous, keel not prominent, about 3 lines long, margins imbricate. Calyx-tube at first not longer than the bracteoles, but ultimately attaining a length of 4 lines, glabrous, linear-fusiform below the middle, attenuate and solid upwards, lobes broadly ovate or almost orbicular, small, abruptly terminating in slender finely barbellate arms of 5-6 lines in length. Petals about 3 lines long, obtuse or hardly acute, keeled. Stamens 30-35; anthers small, connective, globular. Style glabrous, deciduous, inserted on the staminal disk.

*Locality*.—Cunderdin, August 1903.—W. V. F.

*Remarks*.—The new species is allied to *C. brachyphylla*, Turcz., differing principally in the persistent stipules, the free imbricated bracteoles, and the obtuse carinate petals. It differs from all other members of the genus in the stipules being persistent. From *C. tenuiramea*, Turcz., and *C. tetragona*, Labill, species in which the stipules, though deciduous, have been of sufficient importance for reference in diagnoses, it differs sectionally.

**CALYTHRIX STENOPHYLLA, Sp. nov.—**

Stems slender, erect, mostly simple, numerous from a thickened stock, loosely invested with spreading hairs, rarely nearly glabrous, 4-6 inches high. Leaves glabrous, linear-triquetrous, acute, mostly 4-6 lines long, all similar. Flowers lilac, on stout pedicels of  $1-1\frac{1}{2}$  lines long, axillary below the ends of the stems or branches. Bracteoles about 3 lines long, connate to half their length and terminating in subulate points, slightly scabrous or finely tomentose, without prominent keels. Calyx-tube about 5 lines long, fusiform below the middle, sulcate-striate, finely silky-hairy at the base, otherwise glabrous, the upper portion slender and solid; lobes narrow, ovate, about 1 line long, tapering into hair-like finely hirsute awns of 6-7 lines long. Petals rather broad, obtuse, 3-4 lines long. Stamens numerous, lilac; anthers yellow, connective gland rather prominent. Style inserted on the nearly flat staminal disk, persistent or tardily deciduous.

*Locality*.—Near Smith's Mill, Dec. 1902.—W. V. F.

*Remarks*.—The new species has the habit, almost the foliage and inflorescence of forms of *C. simplex*, Lindl. Technically it is nearer *C. variabilis*, Lindl., differing principally in not being glabrous, in the

subulate-pointed bracteoles being much shorter than the calyx-tube and not glabrous, the not acute petals, and in the usually persistent style.

**MICROMYRTUS SULPHUREA, Sp. nov.—**

An erect glabrous shrub of 3-5 feet in height, with numerous short rigidly divaricate branchlets. Leaves densely crowded on the branchlets, often imbricate, linear-clavate or semi-terete, obtuse, copiously glandular-dotted, mostly about 1 line long. Flowers small, sulphur-yellow. Pedicels solitary in the upper axils, rather thick,  $\frac{1}{2}$ - $\frac{3}{4}$  line long, articulate immediately beneath the calyx; bracteoles subtending the calyx, narrow-ovate, keeled, not exceeding the bud, deciduous. Calyx-tube cylindrical, expanding upwards, longitudinally 10-streaked, about 1 line long; sepals exceedingly short, broad and almost confluent, scarious, denticulate. Petals orbicular, under  $\frac{3}{4}$  line diameter, minutely denticulate. Stamens 10; filaments short, filiform, much incurved; anthers opening in short divergent slits, connective globose. Ovules 2, the fruiting calyx somewhat spongy within. Ripe fruit not seen.

*Locality.*—On rocky hillside,  $\frac{1}{2}$  mile west of Mt. Magnet, Sept. 1903.—W. V. F.

*Remarks.*—Differs from *M. elobata*, Benth., in inflorescence, the more conspicuous sepals and smaller petals; from *M. racemosa*, Benth., in the calyx-tube; from *M. imbricata*, Benth., in shorter pedicels, and in the structure of the flower. The habit and foliage is very different from those of the above named species, which, moreover, have constantly white or pink flowers. Baron F. von. Mueller has described 3 other species since Bentham established this distinct genus. These, along with the 4 known to Bentham, were transferred by the former to Thryptomene. One species (*T. flaviflora*, F. v. M.) has yellow flowers, but with a 5-ribbed calyx-tube, 5 stamens, and an 8-12 ovulate ovary.

**SCHOLTZIA DECUSSATA, Sp. nov.—**

An erect, bushy, rigidly-branched shrub of 10-12 feet in height, quite glabrous. Leaves decussate, often almost imbricate, broadly ovate, very obtuse, concave, keeled, 1 line long, copiously black-dotted, the floral ones much reduced. Fl. pink, solitary, axillary, sessile, forming capitate leafy clusters at the ends of the branchlets. Bracteoles pink, orbicular, keeled, about 1 line in diameter, persistent, scarious and veined, completely enveloping the flower before expansion. Calyx-tube broadly turbinate,  $\frac{3}{4}$  line long, much longitudinally wrinkled; lobes petal-like, orbicular-cordate, slightly denticulate, 1 line diameter. Petals scarcely exceeding the calyx-lobes, orbicular, denticulate. Stamens 20-25, mostly 22; filaments slender, terete; anther cells globular, almost distinct, opening in terminal pores, connective gland

prominent. Ovary convex, 2-celled with 2-3 superposed ovules in each cell; style short and thick, slightly immersed; stigma capitate. Ripe fruit not seen.

*Locality*.—Mt. Magnet, associated with *Micromyrtus sulphurea*, W. V. F., Sept. 1903.—W. V. F.

*Remarks*.—The foliage and inflorescence is very different from that of its nearest allies, *S. Drummondii*, Benth., and *S. teretifolia*, Benth. It also differs from the former in the much wrinkled calyx-tube and from the latter in habit and in the shape of the ovary. The new species in aspect bears some resemblance to some species of *Thryptomene*, and structurally the flowers only differ from those of *Bæckea* (section *Babingtonia*) in the parts being more persistent and in placentation.

**BÆCKEA DECIPIENS, Sp. nov.—**

A low spreading shrub; branches slender, attaining a height of 2 feet, the branchlets numerous and short, glabrous, the young shoots glandular-tuberculate. Leaves crowded on the branchlets, frequently alternate, often almost imbricate, linear to linear-spathulate, finely mucronate, triquetrous,  $1\frac{1}{2}$ -2 lines long. Flowers rather small, white to pale-pink, mostly in umbels of 3-4, sessile on a somewhat recurved axillary peduncle of 1-2 lines long, articulate at the top; bracts persistent, free, smaller than but similar to the leaves; bracteoles leaf-like, much reduced, subtending the calyx, persistent, free. Calyx-tube campanulate-turbinate,  $1-1\frac{1}{4}$  lines long, prominently 5-angled; lobes very short, deltoid, herbaceous. Petals orbicular, slightly denticulate, 1 line diameter. Stamens 5; filaments very short, incurved, slightly flattened; anther-cells distinct, globular, opening in short slits, connective prominent, globular. Ovary flat, apparently 2-celled with 34 ovules in each cell; style short, slightly immersed; stigma capitate. Ripe fruit not seen.

*Locality*.—Minginew, sand plains, Sept. 1903.—W. V. F.

*Remarks*.—In foliage and habit bears a remarkable resemblance to *B. camphorosma*, Endl., but in inflorescence, flowers and fruit is widely different.

**EUCALYPTUS STRIATICALYX, Sp. nov.—**

Arborescent, attaining a height of 40-50 feet or more with a stem-diameter of  $1\frac{1}{2}$  feet; bark dark-grey, moderately thick, rough, persistent on the lower portion of the trunk, upwards thin and decorticating in small sheets, that on the cylindrical branches and branchlets whitish and smooth. Leaves alternate, conspicuously petiolate, ovate-lanceolate to lanceolate, straight or falcate, shortly acuminate, thick almost coriaceous, 3-6 inches long, veins numerous, very fine, divergent, circumferential one close to the edge, dull-greyish on both sides. Peduncles axillary or lateral, solitary or forming short terminal panicles through leaf-suppression, terete or hardly angular, erect or

spreading,  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, each bearing an umbel of 6-8 moderate-sized flowers. Calyx-tube turbinate, in bud above 3 lines long, smooth or scarcely striate, tapering into a short pedicel, lid hemispherical, terminating in a straight obtuse beak, broader than and as long as or longer than the tube, with 10-15 longitudinal raised lines. Stamens pale-colored, inflected in the bud; anthers broadly oblong, with parallel distinct cells. Ovary shortly conical in the centre. Fruit obovoid, about 5 lines long,  $3\frac{1}{2}$  lines across, faintly and irregularly striate, slightly or not at all contracted at the summit, border thin, concave; valves usually 4, subulate, the points included. Seeds brown, irregular, without appendages, fertile ones 1 line long,  $\frac{3}{4}$  line broad, sterile, about half as long as broad.

*Locality*.—Milly's Soak, and four miles east of Nannine, Sept. 1903.—W. V. F.

*Remarks*.—The new species constitutes one of the "Flooded gums" or the "York gum" of the Cue and Nannine mining districts. In cortical characters, the crooked nature of the trunk and in the wood it is not very different from that of the true "York gum" (*E. foecunda*, Schaner var. *loxopheba*), but the foliage, flowers and fruits are very different. In the latter characteristics it more closely approximates *E. incrassata*, Labill., and differs chiefly from that species in habit, bark, and in the calyx lid being broader than the tube and conspicuously ribbed. So far as observed, the new plant is confined to calcareous areas, with a permanent supply of fresh water at shallow depths. It appears to reproduce readily from seeds, suckers freely, and is apparently a moderately fast grower. Roughly, it covers an area of five square miles at Milly's Soak, and about 4 square miles east of Nannine. Both areas have in years past been largely drawn on for use in the various mines, and for fuel, and are now practically denuded of all matured examples. In the first-named locality the species is associated with *E. microtheca*, F. v. M., in places being almost entirely superseded by that species. Near Nannine the accompanying congener consists of irregularly grown examples of *E. rostrata*, Schlecht. The presence of these eucalypts offers a pleasing variation to the monotony of the greyish-foliaged "Mulga" (*Acaciæ*) which cover a vast proportion of these districts. It may be remarked that the so-called "White gum" at Milly's Soak is the *E. microtheca*, F. v. M., and the "Flooded gum" east of Nannine is *E. rostrata*, Schlecht., partly.

**EUCALYPTUS ACCEDENS, Sp. nov.—**

Arborescent, attaining a height of 60 feet, with a stem-diameter of 2 feet, the trunk crooked; branches slender, terete or nearly so; bark smooth, persistent, greyish or white, splashed or blotched with a darker color. Leaves alternate, ovate to lanceolate, falcate or

straight, obtuse or shortly acuminate, thick, rigid, pale-green on both sides, under 4 inches long and obliquely rounded into a petiole of  $\frac{1}{2}$  inch long, veins very fine, numerous, parallel, oblique, inconspicuous, the marginal one almost or quite at the edge. Peduncles axillary or lateral, solitary or rarely 2 together, terete or slightly angular,  $\frac{1}{2}$ -1 inch long, each bearing an umbel of 5-8 flowers. Calyx-tube broadly-turbinate or semi-ovate, about 3 lines long, tapering into a thick terete or scarcely angular pedicel of 1 line long. Lid hemispherical, very obtuse and rounded at the apex, yellowish, about  $\frac{1}{2}$  as long as the tube. Stamens about 3 lines long; filaments much inflected in bud, white or pale yellow; anthers oblong or elliptical, with parallel distinct cells. Ovary very conical. Fruit turbinate or obovate,  $3\frac{1}{2}$ -4 lines long,  $2\frac{1}{2}$  lines diameter, slightly or not at all contracted at the summit, rim convex and thin, capsule sunk; valves usually 4, deltoid, obtuse, the points on a level with the rim or scarcely exerted. Seeds angular, not winged; fertile ones greyish,  $\frac{3}{4}$  line long and broad; sterile ones brown,  $\frac{1}{2}$  line broad.

*Locality*.—Near Pingelly, Nov. 1903.—W. V. F.

*Remarks*.—The species is vernacularly known as "Spotted gum," and occurs on rising ground, usually associated with "Mallert" (*E. occidentalis*, Endl.) Analysis of the bark has proved it to contain nearly 45 per cent. of tannic principle.

The new plant differs from *E. redunca*, Schauer, in the bark, the not flattened fewer-flowered peduncles, broader calyx-tube, the short semiglobular lid and in the fruits; from *E. foecunda*, Schauer, in the shape of the leaves, the anthers not being ovate, ovary not flat-topped, in the comparatively broader fruits, and the broader obtusely-pointed valves.

## UMBELLIFERÆ.

### HYDROCOTYLE CERATOCARPA, Sp. nov.—

A tufted glabrous annual, with numerous erect or ascending rather stout stems, of 4-6 inches high. Radical leaves not numerous, on slender petioles of 1-1 $\frac{1}{2}$  inch long, laminæ about  $\frac{1}{2}$  inch long and broad, cuneate at the base, 3-5-partite, the segments entire or incised; stem-leaves on shorter petioles, dissected nearly to the base. Stipules broad in the lower portion, upwards divided into long filiform segments. Peduncles leaf-opposed, stout,  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, bearing an umbel of usually 3 pedicellate flowers of about 1 line long. Pedicels thick,  $\frac{1}{2}$  line long. Involucral bracts 5, ovate to ovate-lanceolate, acute, ciliate with coarse asperities, nearly as long as the flowers. Calyx-teeth almost obsolete. Petals white, ovate, obtuse, slightly imbricate,  $\frac{1}{3}$  line long. Styles short. Fruits red, ovate, about 2 lines long, much



compressed, the lateral ribs concealed in the commissure, the intermediate ones curved, dorsal rib prominent, invested on each side with short glochidiate bristles, which are sometimes present on the intermediate ribs. Summit of each intermediate rib terminating in rigid, divaricate oblong, obtuse, vertical appendages of 1 line in length, edged with a few asperities. Carpophore persistent.

*Locality*.—Wurarga, Sept. 1903.—W. V. F.

*Remarks*.—Approaches *H. glochidiata*, Benth., but is well distinguished from that species and other West Australian members of the genus by the conspicuous fruit appendages which give to the fruit a cruciform character. They are apparent in the young flower. The habit and general appearance is that of a *Trachymene*, to which genus I would have referred it but for the presence of stipules.

## COMPOSITÆ.

### HELICHRYSUM TURBINATUM, Sp. nov.—

A glabrous erect corymbosely-branched annual of 4-6 inches high. Leaves alternate, not stem-clasping, filiform and almost terete, obtuse,  $1\frac{1}{2}$ -2 inches long, the upper ones exceeding the inflorescence. Flower-heads shortly pedunculate, terminating the branchlets, often subtended by a small leaf-like bract. Involucre turbinate,  $3\frac{1}{2}$ -4 lines long and about 2 lines in diameter, the outer bracts closely appressed in few rows, ovate to ovate-lanceolate, with a prominent greenish midrib and scarious margins, inner bracts narrower with spreading white lanceolate-lanceolate laminae of  $1-1\frac{1}{2}$  lines long. Receptacle slightly conical. Florets 12-15, scarcely exceeding the involucre, all hermaphrodite, but in flower-heads examined 2-4 not perfecting ripe fruitlets. Perfect fruitlets elliptical,  $1\frac{1}{2}$  lines long, with irregularly crenulated angles, slightly papillose, otherwise glabrous; abortive fruitlets compressed with thickened margins. Pappus-bristles 30 or more, longer than the corolla, irregularly united at the base into a short tube, strongly barbelate towards the base, much less so upwards.

*Locality*.—Nannine, in crevices of rocks along the shores of a salt lake, September 1903 —W. V. F.

*Remarks*.—This species is placed in *Helichrysum* with a considerable amount of doubt. At first sight it appears to belong to the section *Pteropogon* of *Helipterum*, but the pappus-bristles are undoubtedly those of *Helichrysum*.

### HELIPTERUM ADPRESSUM, Sp. nov.—

An erect shrub of 1 foot in height, with numerous slender twiggy branches completely invested with white wool. Leaves alternate, sessile, linear or subulate, hardly acute, erect and closely appressed,

tips slightly spreading, the short bases long persistent, very viscid, much flattened with involute entire margins, mostly 3-6 lines long, the upper ones reduced to scarious pointed bracts. Flower heads solitary, sessile, terminating the slender branchlets. Involucre of a shining pale-yellow, semioval, slightly viscid, about 3 lines across; bracts in several series, appressed, conspicuously ciliate, scarious, with minute glabrous hardy spreading tips. Florets 20-30; all hermaphrodite. Achenes slightly compressed, papillose. Pappus of 12-15 rather fine very plumose bristles.

*Locality*.—Broad Arrow, dry spots, Sept., 1898.—W. V. F.

*Remarks*.—Although in many respects allied to *H. pterochaetum* Benth., it differs in the inflorescence, the shape of the involucre and most markedly in the closely appressed involute viscid foliage. At first sight the latter resembles a number of broad based dark lines raised on a level with the white wool of the stem and branches.

#### **HELIPTERUM PROPINQUUM, Sp. nov. —**

An erect slender corymbosely-branched annual of 3-6 inches in height, more or less woolly-tomentose. Leaves usually alternate, linear, flat,  $\frac{1}{2}$ -1 inch long, stem clasping and occasionally decurrent, upper ones abbreviated. Flower-heads shortly pedunculate, solitary or forming small corymbs of few flowers. Involucres broadly campanulate,  $2\frac{1}{2}$ -3 lines diameter; bracts in few rows, closely appressed, rigid, shining-brown, ovate-lanceolate, the inner ones with radiating ovate white laminae of 1 line. Florets, 12-15, all hermaphrodite, 5 marginal ones fertile only. Achenes densely invested with long silky hairs. Pappus-bristles 15-20, plumose, exceeding the corolla.

*Locality*.—Nannine, Sept. 1903.—W. V. F.

*Remarks*.—Differs from *H. strictum*, Benth., principally in the presence of tomentum and in the marginal florets only being fertile; from *H. sterilecens*, F. v. M., in not crowded flowerheads, fewer flowers in the heads, fertile achenes 5 instead of 1-3, sterile achenes not glabrous, and in the more numerous equally plumose pappus-bristles.

#### **HELIPTERUM CRASPEIDIODES, Sp. nov.**

An annual with several erect or ascending stems, usually under 1 foot high, simple, green and scabrous or woolly-pubescent. Leaves alternate, linear or linear-lanceolate, stem-clasping and shortly decurrent,  $1\frac{1}{2}$ -3 inches long, gradually reduced to bracts along the peduncle-like stems. Flower heads very small, numerous, on short pedicels, crowded in a head-like corymb, which is more or less invested with imbricate white wool. Involucres shortly turbinate or ovate, 2-2 $\frac{1}{2}$  lines long, bracts few, the outer ones herbaceous, lanceolate, the inner scarious, ovate to ovate-lanceolate without radiating tips. Florets 5,

all hermaphrodite, the two outer ones only fertile. Fertile achenes ovate and thick, densely invested with coarse white hairs; pappus-bristles 30 or more, white, elegantly plumose and slightly longer than the achene. Abortive achenes very flat, broad-linear, glabrous on both faces, with ciliate margins; pappus-bristles on the fertile achene.

*Locality*.—Lawlers, July 1899; Mingenew to Nannine, Sept. 1903.—W. V. F.

*Remarks*.—In the early flowering stage this species would be readily passed as a *Craspedia*, as it is only in the advanced flowering stage that the corymbose nature of the inflorescence becomes very evident. The structure of the flower is that of a true *Helipterum* of the section *Pteropogon*. In the pronounced sterility of the majority of the flowers it approaches *H. sterilecens*, F. v. M., which has a head of 15-25 flowers with 1-3 fertile, and *H. propinquum*, W. V. F., with 13-15 flowers, of which 5 are fertile. Both are rayed species, and otherwise very different.

## GOODENIACEÆ.

### VELLEIA HISPIDA, Sp. nov.—

Annual, densely invested with coarse white spreading hairs associated with more or less white wool. Radical leaves linear or linear-lanceolate, irregularly toothed, 1-nerved, tapering into a long petiole,  $1\frac{1}{2}$ -2 inches long. Stems erect or ascending, 3-4 inches high, di- or trichotomously branched. Bracts opposite at the forks, shortly connate, with a cuneate base, deeply trilobed, the upper ones small linear-lanceolate and entire. Calyx inflated at the base; sepals 5, free, ovate-lanceolate, acuminate, all equal, rather thin, coarsely hairy, margins irregularly denticulate,  $3\frac{1}{2}$ -4 lines long. Corolla pale-yellow,  $3$ - $3\frac{1}{2}$  lines long; tube densely hirsute, spur obsolete; lobes scantily hirsute, edged with a narrow pale-coloured wing, the 2 upper ones divided low down. Indusium conspicuous, ciliate. Capsule globular, slightly exceeding the sepals, membranous, sericeous; seeds with a broad brown wing.

*Locality*.—Nannine, rocky spots, Sept. 1903.—W. V. F.

*Remarks*.—This species differs from its nearest affinity, *V. paradoxa*, R. Br., in the constantly smaller habit, connate bracts, the inflated appearance of the calyx, the sepals exceeding the corolla and in the fruit always exceeding the sepals.

### GOODENIA MAIDENIANA, Sp. nov.—

A perennial, with usually a slender tap-root, sometimes shortly creeping, scantily invested with appressed rigid white hairs, the leaf-axils woolly; stems slender, procumbent, 4-6 inches long. Radical leaves ovate or ovate cuneate, usually rosulate, rather thick, glabrous, coarsely and irregularly toothed, about  $1\frac{1}{2}$  inches long, including the

petiole, stem-leaves scattered, occasionally crowded at the ends of the stems, all gradually reduced in size, with 1 or 2 teeth, or ultimately entire. Pedicels solitary in the upper axils or several from the terminal tufts, filiform, ebracteate, much longer than the subtending leaf. Calyx-tube turbinate, the lobes subulate, much longer than the tube, invested with coarse appressed hairs. Corolla densely hairy, yellow, nearly 9 lines long, the upper lobes separated low down, slightly unequally winged, auricles prominent. Indusium densely ciliate. Dissepiment of the ovary reaching from above the middle; ovules numerous. Capsules ovate; seeds (not ripe) numerous, imbricate, in almost a single row in each cell, flat with a prominent border or irregular wing.

*Locality*.—Nannine, in sand along the shores of a salt lake, Sept. 1903.—W. V. F.

*Remarks*.—Closely approaches *G. cycloptera*, R. Br., differing principally in being almost glabrous, in the prominent dissepiment to the ovary and in the seeds. This new species is named in honor of Mr. J. H. Maiden, F.L.S., Director of the Botanic Gardens, Sydney, New South Wales, and a well-known Australian botanist.

#### **SCÆVOLA DECURRENS, Sp. nov.**—

An undershrub with rather stout ascending stems of 6-9 inches in length, with the exception of the corolla-throat and genitalia perfectly glabrous. Leaves succulent but flat, cuneate with few prominent divaricate teeth especially near the end, becoming broad lanceolate, slightly toothed or entire, higher on the stems and branchlets; hardly acute, sessile, narrowed at the base, the margins decurrent, thus giving the plant the appearance of being winged or angled,  $\frac{1}{2}$ -1 inch long. Flowers 3 to many, in axillary shortly pedunculate clusters becoming at length paniculate, much shorter than the subtending leaf. Bracts very small, ovate acuminate; bracteoles none. Calyx-lobes hardly  $\frac{3}{4}$  line long, almost deltoid, obtuse. Corolla 3-4 lines long, dirty-yellow, glabrous without, glandular within, the lobes hardly acute, with bright-yellow oblique wings descending halfway to the base. Filaments free, but the anthers often slightly connate. Ovary 2-celled, with 1 ovule in each cell; style glandular-hairy from the base; indusium campanulate, much projecting beyond the broad stigmatic end, glabrous and membranous, finely ciliate. Fruit small, somewhat fleshy, conspicuously rugose.

*Locality*.—Nannine, in sand along shores of salt lake, Sept. 1903.—W. V. F.

*Remarks*.—The new species is placed in *Scævola* for convenience only. Although the inflorescence approaches that of *S. Koenigii*, Vahl, the new plant differs widely from any member of the genus in the anthers being often slightly connate and in the peculiar campanulate membranous indusium.

## EPACRIDÆ.

### LEUCOPOGON MARGINATUS, Sp. nov.—

An erect shrub of  $1\frac{1}{2}$ -2 feet high; branches glabrous. Leaves alternate, erect, closely appressed, concave, the margins often clasping the branches, crowded or imbricate on the terminal shoots, conspicuously striate, ovate to ovate-lanceolate, shortly pungent-pointed, nearly sessile, mostly 2-3 lines long, the margins bordered by a crisped or undulate membrane. Peduncles in the upper axils, 1-3 flowered, shorter or rarely as long as the leaves, rhachis hairy. Bracts nearly orbicular, minute: bracteoles  $\frac{1}{3}$  as long as the sepals, orbicular, concave, strongly keeled, mucronate, and along with the bracts membranous margined. Sepals broadly lanceolar, obtuse, dry,  $1.1\frac{1}{4}$  lines long. Corolla white; tubes slightly exceeding the calyx; lobes shorter than the tube, ending in acute glabrous tips. Filaments hardly flattened; anthers attached near the top, oblong, without sterile tips. Hypogynous disk  $\frac{2}{3}$  the length of the ovary, the scales broad, free and usually emarginate or bidentate. Ovary longitudinally streaked, glabrous, 5-celled. Style barely exerted; stigma capitate.

*Locality*.—Arrino, sand plains, Sept. 1903.—W. V. F.

*Remarks*.—Allied to *L. obtectus*, Benth. and *L. crassiflorus*, F. v. M., differing from the former chiefly in the foliage and from the latter in foliage and inflorescence.

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## MYOPORINÆ.

### EREMOPHILA HASTIANA, Sp. nov.—

An erect rigidly-branched shrub of 4 feet in height, the whole plant more or less invested with a short greyish stellate tomentum, becoming whiter on the shoots, pedicels and calyxes. Leaves soft, shortly petioled, broadly obovate, obtuse, entire, 4-6 lines long, rather thick and flat, or with slightly recurved margins. Flowers purple. Pedicels solitary, axillary, spreading, at length curved upwards and dilated beneath the calyx,  $\frac{1}{2}$ - $\frac{3}{4}$  inch long. Calyx divided nearly to the base; segments imbricated, broadly ovate or obovate, obtuse, thick, soft, densely tomentose on both sides, about  $2\frac{1}{2}$  lines long in flower, enlarging to 4 lines in fruit but not becoming scarious. Corolla  $\frac{3}{4}$  inch long, tomentose without, rather slender, not much dilated upwards, the tube scarcely contracted above the ovary; lobes about 2 lines long, ovate, obtuse, the 2 upper ones united higher up. Stamens long, exerted. Ovary conical, glabrous, 4-celled, each cell 2-ovuled. Fruit ovoid,  $1\frac{1}{2}$ -2 lines long, yellowish dry and woody, tardily splitting into 4 nuts.

*Locality*.—Nannine, Sept. 1903.—W. V. F.

*Remarks.*—Allied to *E. Latrobei*, F. v. M., differing in comparatively broader leaves, smaller parts to the flowers, broader more imbricated segments, the lower corolla-lobe less deeply divided and in smaller fruit.

Named out of compliment to Mr. R. Hastie, M.L.A., a member of the Royal Commission on Forestry.

**EREMOPHILA SPATHULATA, Sp. nov.—**

An erect bushy shrub of 2-4 feet in height, branches stout, the scars of the fallen leaves prominent, more or less tomentose, the young shoots and calyxes slightly viscid. Leaves when young closely tomentose, becoming glabrous with age, broadly spathulate to obovate, shortly recurved at the apex, tapering into an incurved petiole equalling the laminae in length, the whole leaf 5-8 lines long, thick but flat or slightly complicate, the midrib prominent. Pedicels solitary or not rarely 2-3 in the same axil, slender, spreading, tomentose, thickened upwards, 4-8 lines long. Calyx-lobes imbricate, longitudinally ribbed, veined, densely tomentose without, slightly so within, ovate-lanceolate, shortly acute, the outermost much broader and slightly longer than the others, 4-6 lines long in flower. Corolla not above 1 inch long, violet with a yellow base, finely tomentose without, densely woolly within, the tube contracted above the ovary, dilated upwards, the 4 upper lobes ovate and acute, the 2 uppermost united higher up, the lower middle lobe obovate and obtuse. Stamens included. Ovary narrow, gradually tapering into the style and along with it more or less tomentose, with 2-3 pairs of ovules in each cell suspended from short flat erect superposed funicles. Fruit not seen.

*Locality.*—Cue to Nannine, in stony spots, Sept. 1903, W. V. F.

*Remarks.*—Differs from *E. Freelingii*, F. v. M., in the shape and character of the foliage, the inflorescence and in the densely tomentose and not hispid ovary.

**EREMOPHILA PTEROCARPA, Sp. nov.—**

A bushy shrub of 10-15 feet, quite erect; branchlets slender, short, numerous, velutinous and glandular-tuberculate. Leaves scented, opposite or alternate, rather crowded towards the ends of the branchlets, lanceolate with acute straight points, tapering into a short petiole,  $\frac{3}{4}$ -1 inch long, flat, twisted, velutinous, midrib not prominent. Calyx-lobes apparently valvate, ovate, hardly acute, 1-1 $\frac{1}{4}$  lines long, velutinous on both sides, erect on the expansion of the corolla but soon becoming reflexed, not enlarged in fruit. Corolla  $\frac{1}{2}$  inch long, dull-red, densely invested with white branched hairlets without, nearly glabrous within, slightly constricted above the ovary, not much enlarged upwards, long persistent, the upper lobes very short and deltoid, the lower middle lobe divided to  $\frac{1}{3}$  the length of the tube, ovate, obtuse. Stamens

shortly exserted. Ovary cylindrical, densely invested with branched white woolly hairs, 6-ribbed, 4-celled with 2 ovules in each cell; style rather long, filiform, the lower half sparingly hirsute. Fruit dry, dull-purple, invested with white branched hairlets, ovate-cordate, the apex terminating in an oblique obtuse point, each lateral suture edged by 2 undulate partially connate wings extending the length of the fruit and attaining a width of  $1\frac{1}{2}$  lines, the dorsal and ventral sutures each bearing 2 short narrow diverging wings, the whole fruit attaining a length of 5 lines with a width of 4 lines; endocarp hard, 4-celled, each cell 2-seeded. Seeds glabrous, linear-oblong, pendulous from broad flat almost superposed funicles

*Locality*.—Nannine, stony soil, Sept. 1903.—W. V. F.

*Remarks*.—In most characters approximates *E. Youngii*, F. v. M., but differs widely from it and all other members of the genus and, in fact, of the Order in the peculiar character of the fruit.

## VERBENACEÆ.

### LACHNOSTACHYS RODWAYANA, Sp. nov.

An erect shrub of slender graceful habit, attaining a height of 3-5 feet, the branches, leaves and inflorescence closely invested with a short whitish tomentum. Leaves decussate, erect or spreading and incurved, almost sessile, bullate, thick and rather rigid, linear-lanceolate or oblong, apex obtuse and straight or slightly recurved, margins revolute, the midrib only apparent beneath,  $\frac{3}{4}$ -1 inch long, greyish-tomentellous above, white-tomentose beneath. Spikes with numerous but not closely approximated flowers, 1-2 inches long, many in a corymbose or pyramidal terminal panicle, sometimes attaining a length and breadth of 4 inches but usually less; the flowers in clusters of 4-6, each cluster forming a woolly mass of 2 lines across, the corolla only visible on expansion. Flowers on pedicels of 1 line long. Calyx about  $1\frac{1}{4}$  lines diameter when expanded, glabrous within, divided to the middle into 7 acute lobes, each with a conspicuous central nerve. Corolla as long as the calyx, dark-purple, truncate, glabrous without sparingly hirsute within. Filaments 7, quite marginal. Lower half of ovary glabrous, upper half and style hispid, apparently 2-celled, each cell 1-ovulate. Ripe fruits not seen.

*Locality*.—Arrino, sand plain, Sept. 1903,—W. V. F.

*Remarks*.—Principally differs from *L. verbascifolia*, F. v. M., and *L. ferruginea*, W. J. H., in foliage inflorescence and in the constantly 7-merous flowers and from all members of the genus in vestiture.

This ornamental plant is named in honor of Mr. L. Rodway, Government Botanist of Tasmania.

**PITYRODIA VISCIDA, Sp. nov.—**

An erect or diffuse shrub of 1-1½ feet high, with numerous twiggy branches, closely invested with a short dingy viscid pubescence. Leaves mostly opposite, shortly petiolate, obovate to elliptical, obtuse, 3-4 lines long, flat or with slightly recurved margins, glabrous and viscid above, white-tomentose beneath. Flowers few, almost sessile and solitary in the upper axils, subtended by 2 linear bracteoles. Calyx about 3 lines long, the lobes 3-nerved, lanceolate, acuminate, twice as long as the turbinate tube, viscid, hirsute. Corolla white, 5-6 lines long, glabrous without, the white woolly hairs below the insertion of the filaments copious; tube short and broad; lobes rather broad, the lowest middle lobes 3 times longer and broader than the others. Anthers scarcely exerted, shortly appendiculate. Ovary glabrous and slightly reticulated in the lower half, the upper portion densely invested with a white furfuraceous tomentum; ovules nearly sessile, attached at or near the top; style glabrous and slender, hooked at the extremity, conspicuously bilobed.

*Locality*.—Arrino, sand plain, Sept. 1903.—W. V. F.

*Remarks*.—From its nearest ally, *P. (Chloanthes) hemigenioides*, F. v. M., the new species is distinguished by the viscid pubescence, obovate leaves and semi-glabrous ovary.

## PHYTOLACACEÆ.

**GYROSTEMON VIMINEUS, Sp. nov.—**

A diffuse diœcious shrub of about 3 feet in height, with numerous long slender flexible branches, green and glabrous. Leaves very few, distant, linear-terete, slender almost filiform, slightly thickened below the shortly mucronate apex, varying from 1½-2 inches long under the lower branches to much shorter above. Flowers minute, axillary on erect or slightly recurved pedicels of ¾-1 line long, the open perianth under ¾ line diameter. Stamens in the males 20-25, in several series, covering the whole of the centre of the perianth. Ovary of the females of mostly 6 carpels, but varying from 4-8, prominently angled; styles linear, rather conspicuous. Fruit broadly turbinate, rather small, much depressed centrally, disk small, the styles persistent round it, the carpels separating at ripening on the outer linear angles. Seeds brown, very rugose.

*Locality*.—Cunderdin, Nov. 1903.—W. V. F.

*Remarks*.—Although the male flowers are structurally identical with those of *G. ramulosus*, Desfont., it differs widely from that species in habit, foliage, and in the female flowers and fruits. In the latter it approximates *G. cyclothea*, F. v. M.

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[NOTE.—Mr. Charles Harper, M.L.A., has forwarded me specimens of this plant from country east of York. He says—"This plant, I am told by those who have followed sheep, is a very favourite shrub with sheep when not too old and hard; it makes rapid growth during the summer, and is consequently green and soft when grass is dry, and is thus of value. It is locally known as "jointed bush." It seems to find its most suitable habitat on the sandy knolls in granite country."]



*G. racemulosus*, Desfont.—On the sand plains at Arrino this species often becomes of diffuse or ascending habit, and is frequently under 1 foot high, the flowers through leaf-suppression often forming axillary racemes of 1-2 inches long, otherwise as in the type. Without flowers and fruits this form would be readily mistaken for *Tersonia brevipes*, Moquin.

*G. Sheathii*, W. V. F.—The male plant of this species now becomes known for the first time, examples having been gathered by Mr. C. R. P. Andrews from North of Esperance. It has the leaves and inflorescence of the female, with the flowers of *G. racemulosus*, Desfont., but smaller.

## CHENOPODIACEÆ.

### KOCHIA ATKINSIANA, Sp. nov.—

A shrub of straggling habit, stems and branches stout, and attaining a length of 2 feet; branchlets densely tomentose, becoming more or less glabrous with age. Leaves clustered along the branches, invested with silky appressed hairs, thick, succulent, obovate and minutely apiculate to almost globular, 1-2 lines long. Flowers solitary, axillary. Fruiting-perianth deep red, and including the marginal expansion 5-8 lines across; lobes scantily hirsute, short, raised above the plane of the wings, 2 with dorsal irregularly denticulate appendages bifid almost to the base, and 1 with a simple appendage, all broad, thick, almost succulent, obtuse, erect, attaining a height of 3 lines, 2 lobes without appendages; tube broadly turbinate, glabrous, with 8-10 prominent longitudinal ribs; wings connate, finely veined, margin crenulate or slightly lobed. Styles 2, short, connate to above the base.

*Locality*.—Nannine, Sept., and Gwalia, Nov. 1903.—W. v. F.

*Remarks*.—Differs widely from all allied species in foliage. The perianth approximates that of *K. prosthecochaeta*, F. v. M., differing chiefly in the number, structure and position of the dorsal appendages.

This new saltbush is named in compliment to Mr. W. Atkins, M.L.A., one of the members of the Royal Commission on Forestry.

*K. prosthecochaeta*, F. v. M.; Cue, C. R. P. Andrews.—*K. melanocoma*, F. v. M.; Nannine, W. V. F. Hitherto, these 2 species were not known to occur south of the Gascoyne River, where the original examples were gathered by Sir John Forrest.

### BASSIA (CHENOLEA) DENSIFLORA, Sp. nov.—

Low and spreading, not exceeding a height of 6 inches, stems often ascendant, densely invested with white silky hairs. Leaves thick but flat, soft, linear-lanceolate, acute, mostly about  $\frac{1}{2}$  inch long, the upper ones hardly exceeding the flowers. Flowers solitary, axillary, usually on numerous short branchlets, enveloped in long straight silky

hairs. Perianth-lobes 4, membranous, 3 with solitary, 1 with 2 spines, all dorsal, equal, pungent-pointed, glabrous from the apex to the middle. Styles 2, hirsute, connate near the base. Seed oblique, radicular end ascendant.

*Locality*.—Nannine, Sept. ; Gwalia, Nov. 1903.—W. V. F.

*Remarks*.—Although the new species differs from *Bassia* (*Chenolea*) *euroides*, F. v. M., in aspect, scantier and shorter vestiture, smaller leaves and flowers, the spines 5, equal and rigid, and in the hirsute styles, the differences may not be constant. As far as observed, both species maintain their individuality when growing together.

**BASSIA (SCLEROLÆNA) LONGIFOLIA, Sp. nov.—**

Of low, spreading habit, with rather many erect stout branches, not exceeding a height of 9 inches, densely white-tomentose. Leaves linear-lanceolate, hardly acute, sessile with a broad base, flat, but thick, of a soft texture, silky hairy, 1-1½ inches long. Flowers axillary, sessile, 2 together but distinct. Perianth hardly 1 line long, lobes and appendages woolly-hairy; tube very short, broad, hard and glabrous. Stamens 5. Styles 3, connate to below the middle. Fruiting-perianth enlarged, the lobes closing over the fruit, with 5 erect hardly rigid, entire, bifid or denticulate appendages of 1 line long and alternate with them, and almost on the same plane 5 broad irregular, horizontal or reflexed appendages. Seeds horizontal, the radicular end scarcely ascendant.

*Locality*.—Nannine, Sept. 1903.—W. V. F.

*Remarks*.—This species shows an approach to *Kochia fimbriolata* F. v. M., but the inflorescence and hardened calyx-tube is quite that of a *Sclerolæna*.

**BASSIA (ANISACANTHA) RECURVICUSPIS, Sp. nov.—**

A glabrous spreading undershrub not exceeding a height of 1 foot; branches striate. Leaves cylindrical, acute or obtuse, tapering, towards the base, succulent, 3-4 lines long. Perianth lobes membranous. Style-branches 2. Fruiting-perianth pink, 1-1½ lines long, base cylindrical, the upper portion very hard and forming a ring above the level of the old perianth-lobes; spines 4, recurved, 2 about 1 line long and 2 about half as long or less, the smaller ones approximate or occasionally 1 suppressed. Seed vertical.

*Locality*.—Nannine, Sept. 1903.—W. V. F.

*Remarks*.—Allied to *B. (Anisacantha) echinopsila*, F. v. M., but easily distinguished from other species of this section by the sharply reflexed spines.

## AMARANTACEÆ.

### **PTILOTUS DEPRESSUS, Sp. nov.—**

A depressed rigidly branched shrub of 1-1½ feet high and as much across; branchlets striate and along with the foliage loosely invested with woolly hairs, becoming glabrous with age. Leaves alternate, clustered on the short lateral shoots, of firm texture, bright green, entire, ovate to broad-lanceolate, hardly acute, tapering at the base into a short petiole, 2-4 lines long, midrib not conspicuous. Spikes terminal, ovoid,  $\frac{3}{4}$ -1 inch long, mostly on peduncles of 3-4 lines. Bracts and bracteoles hyaline, broadly ovate, mucronate,  $\frac{1}{2}$ -2 lines long, midrib very fine. Perianth incurved, 5-6 lines long; segments slightly involute; tube very short. Outer segments larger than the inner ones, invested from the outer base to  $\frac{2}{3}$  of their length with white denticulate hairs, glabrous within, the glabrous upper portion pink, apex obtuse, denticulate, central nerve not prominent. Inner segments clothed at the inner base with a dense white crisped wool. Staminal cup short, oblique, subtended and invested with an intricate white wool. Filaments, 2 on one side of the ovary, antheriferous, dilated at the base, 3 almost obsolete. Anthers ovate. Ovary glabrous, shortly stipitate; style slender, excentric.

*Locality*.—Lennonville, Sept. 1903.—W. V. F.

*Remarks*.—The new plant agrees with *P. striatus*, F. v. M., in the vestiture of the staminal tube, with *P. laxus*, F. v. M., in its staminate and pistillate characteristics, but differs widely from both species in habit, foliage and in the glabrous laminæ of the perianth segments. Besides the species here named a reduction to 2 stamens occurs in *P. Polakii*, F. v. M.

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## RESTIACEÆ.

### **HOPKINSIA, Gen. nov.—**

Flowers diœcious, both sexes solitary in spikelets, with imbricate glumes and no bracteoles. Perianth-segments 6, glumelike, almost hyaline. Male-flower: Stamens 3; filaments free; anthers bilocular, dorsally attached in the centre; rudimentary ovary absent. Female-flower: Ovary 1-celled; ovule solitary, pendulous; style simple, stigmatic from above the base; fruit a small obovoid, hard, apparently indehiscent nut. Stems flexuose, much branched; branches and branchlets 1-3 together. Sheathing scales persistent. Male and female inflorescences similar. Spikelets solitary or in pairs, sessile and terminal, or with one or two sessile or shortly pedunculate below the ends of the branchlets, all 1-flowered.

*Remarks.*—This genus is remarkable amongst the members of a difficult Order in having bilocular anthers with a 1-celled ovary and simple style. The male plant has the androecium of *Anarthria*, the female the gynoecium of *Loxocarya*.

It has been named out of compliment to the Hon. J. M. Hopkins, M.L.A., Minister for Lands for this State, as a tribute to the interest which he takes in scientific matters bearing on the advancement of agriculture.

**H. SCABRIDA, Sp. nov. —**

Roots invested with a dense whitish wool; rhizome creeping, glabrous or slightly woolly; stems,  $1\frac{1}{2}$ -2 feet high, erect, glabrous, branched below the middle; branches and branchlets slender, flexuose and, along with the inner portion of the stem, flattened on the inner face, convex outwards, edges finely scabrous. Sheathing scales not numerous, distant, free almost to the base, loose, much spreading and dilated upwards, mucronate, brown, mostly  $\frac{1}{2}$ -1 inch long. Spikelets ovate, shining brown,  $1-1\frac{1}{2}$  line long. Glumes several, broadly ovate, hyaline, much shorter than the spikelet. Male perianth-segments hardly acute, 3 outer ones broadly ovate, about  $\frac{2}{3}$  as long as the ovate-lanceolate inner ones. Filaments filiform: anthers exserted, cells apiculate. Female Perianth-segments acute, nearly equal, broadly ovate, each segment with the edge overlapping or partially rolled round the next, the 2 inner ones enveloping the ovary. Ovary truncate and hardened at the apex, slightly constricted below the summit; style exserted, comparatively stout, stigmatic nearly to the base.

*Locality*—Cunderdin, saline spots, Nov. 1903.—W. V. F.

*Remarks.*—The glumes usually form a small bracteate cup at the base of the spikelet. The female flower at first sight cannot be distinguished from that of *Loxocarya flexuosa*, Benth., but the envelope appears to be in 2 series only.

**HARPERIA, Gen. nov. —**

Flowers dioecious, males many, females two together in spikelets with imbricate glumes. No bracteoles. Male flowers: Perianth-segments 5, hyaline; filaments free, filiform; anthers one-celled; rudimentary ovary absent. Female flowers: Perianth-segments 5, hyaline; no staminodia; ovary 1-celled, containing a single ovule; simple exceedingly short, stigmatic to below the middle; fruit a hard ovoid, slightly angled nut. Stems simple, flexuose, sheathing scales persistent. Spikelets in both sexes several, sessile, axillary and terminal, in the female the rachaeole terminating in an acute empty glume.

*Remarks.*—Approximates *Loxocarya* on the one side and *Lepidobolus* on the other, differing from the former in the simple stems,

from the latter in the persistent sheathing scales and from both in the numerous axillary and terminal solitary spikelets and in the biflorous female spikelet.

This new genus is named in honor of Mr. Charles Harper, M.L.A., Speaker of the West Australian House of Assembly and Chairman of the Royal Commission on Forestry.

**H. LATERIFLORA, Sp. nov.**—

Rhizome creeping widely, rather slender, brown, scantily woolly. Stems numerous, slender, terete, smooth and glabrous or slightly scabrous, 6-9 inches high; bracts few at the base, membranous, striate, loosely appressed, broadened upwards, mucronate; stem-sheaths similar, hardly appressed, slightly woolly in the axils, and all floriferous. Male spikelets pale-brown, narrow ovate, 4 lines long, usually not longer than the subtending sheath; glumes narrow lanceolate, 2-3 lines long, mucronate, all floriferous, perianth-segments narrow-lanceolate, obtuse, all equal, about  $1\frac{1}{4}$  lines long; filaments terete; anthers exserted, linear-ovate, pale-coloured. Female spikelets dark brown, ovate, 3 lines long; glumes ovate, 2 lines long, woolly-hairy on the backs and margins, and terminating in a prominent black or dark-brown mucro; four outer empty ones; perianth-segments broad-linear, the 2 outer ones broader than the others,  $1\frac{1}{2}$  line long, style terminal; nut shorter than the perianth-segments.

*Locality*.—Cunderdin, August 1903.—W.V.F. Saline sandy spots.

*Remarks*.—In aspect resembles a simple-stemmed form of *Loxocarya*. As far as observed the female flowers do not expand. The species frequently forms tufts several feet across, and is usually associated with one of the numerous forms of *Leptocarpus canus*.

## II.

Species already described, but hitherto unrecorded  
from Western Australia.

### RANUNCULACEÆ.

**MYOSURUS MINIMUS, Linné.**—

In saline spots.

*Locality*.—Lakeside, September 1898.—W. V. F.

*Remarks*.—Has now been recorded from all the States of the mainland.

### LEGUMINOSÆ.

**ACACIA ITEAPHYLLA, F. v. M.**—

*Locality*.—Cunderdin, fl. August 1903; nine miles north of Bullabulling, fr. November 1903.—W. v. F.

*Remarks*.—Hitherto only recorded from South Australia.

**CHENOPODIACEÆ.****ATRIPLEX VELUTINELLUM, F. v. M.—**

Erect or ascending 1-1½ feet high.

*Locality.*—Cue, Nannine, September 1903.—W. v. F.

*Remarks.*—Now recorded from all the States of the mainland except Queensland.

**KOCHIA PYRAMIDATA, Benth.—**

Erect shrub of 2-3 feet high, with rigid branchlets.

*Locality.*—Nannine, Sept., Gwalia, Nov. 1903.—W. V. F.

*Remarks.*—Queensland is the only State on the mainland from which this species has not been recorded.

**BASSIA (ANISACANTHA) DIVARICATA, F. v. M.—**

Spreading habit, under 1 foot high.

*Locality.*—Nannine, Sept.; 12 miles north-east of Kanowna, Nov. 1903.—W. V. F.

*Remarks.*—Hitherto unrecorded from this State, though not uncommon in other States of the mainland.

**CENTROLEPIDÆ.****TRITHURIA BIBRACTEATA, Stapf.—**

Plant red, 1 inch high. In muddy spots.

*Locality.*—Midland Junction, October 1902-3.—W. V. F.

**TRITHURIA MICRANTHERA, Stapf.—**

Forming minute tufts, 1 inch high. Muddy spots.

*Locality.*—Midland Junction, October 1902-3.—W. V. F.

*Remarks.*—The last two species were identified for me at Kew, England, and so far as is known are endemic.



# Additions to the West Australian Flora.

(By CECIL R. P. ANDREWS, M.A.)

## I.

### Species hitherto undescribed.

#### **RULINGIA TRATMANNI, n. sp.—**

Nat. Ord. : Sterculiaceæ

A shrub of 1-2 feet with slender branches, covered when young with a close grey velvety tomentum, becoming glabrous when older. Leaves sessile, linear to linear-lanceolate,  $\frac{1}{2}$ -1 inch long, and 1-3 lines broad, obtuse, undulate, with revolute margins, covered on both sides with a dense stellate tomentum. Flowers in terminal compound shortly pedunculate cymes. Calyx tomentose, especially at the base, the upper part prominently angled in the bud, attaining 4 lines in diameter, lobes ovate. Petals  $1\frac{1}{2}$  lines long, expanded into lateral lobes at the base, the ligula very narrow. Stamens very short, nearly or quite free; staminodia linear-lanceolate, tomentose,  $1\frac{1}{2}$  lines long. Ovary glabrous; styles free, but the stigmas more or less coherent. Fruit not seen.

This species scarcely agrees with any of Bentham's sections (Fl. Aust., I. 237). It combines the buds of section B with the leaves of C. In foliage it bears a close resemblance to narrow-leaved forms of *R. grandiflora*. Endl, but the flowers are very different.

I found this species in flower on clay soil near Dundas, in October, 1903. It is named after Frank Tratman, M.D., President of the Western Australian Natural History Society.

#### **ERIOSTEMON FITZGERALDI, n. sp.—**

Nat. Ord. : Rutaceæ

A low rigid much-branched shrub, glabrous, except for short white hairs on the branchlets. Leaves numerous, linear-terete, sessile with petioles adnate to the branches, 2-3 lines long, channelled above, convex below, tuberculate with very prominent glands on both the lamina and the adnate petiole, obtuse or with a short straight point. Pedicels short, axillary, solitary, with several small imbricate bracts at the base. Flowers white, 5-merous. Sepals minute, obtuse. Petals  $1\frac{1}{2}$  lines long, ovate, glabrous, glandular outside, imbricate in the bud, tips much inflected. Filaments glabrous, glandular on the back, flattened; anthers not apiculate. Ovary glabrous; style very short; stigma dilated and slightly lobed; cocci reticulated, shortly beaked. Mature fruit not seen.

This species is allied to *E. linearis*, A. Cunn., but differs in the channelled leaves, glabrous dilated filaments, and shorter style. It is closely allied to *E. Brucei*, F. v. M., but differs in the absence of fufuraceous indumentum, the smaller obtuse or straight-pointed and more prominently tubercled leaves, and the glabrous filaments all dilated.

I found this species in flower on sand plains north of Esperance in October, 1903. It is named after Mr. W. V. Fitzgerald, the most energetic of Western Australian botanists.

**CHORIZEMA UNCINATUM, n. sp. —**

**Nat. Ord. : Leguminosæ**

**Sub-Ord. : Papilionaceæ**

A low shrub with ascending branches under 1 foot long, silky pubescent towards the top. Leaves mostly opposite or in whorls of three, sessile, 2-4 lines long, linear or narrow-ovate with reflexed margins, spreading or recurved, with a short hooked point, glabrous above with very prominent reticulate veins, pubescent below. Racemes terminal, usually dense and spikelike, occasionally laxer and paniced,  $\frac{1}{2}$ -2 inches long. Pedicels very short. Bracteoles half as long as the calyx, linear, silky-hairy, deciduous. Calyx silky with appressed hairs, 4 lines long, the three lower lobes lanceolate-acuminate, longer than the tube, the 2 upper broader and united almost to the top. Petals reddish-brown; standard 6 lines long, not emarginate; wings rather shorter; keel as long as the wings, terminating in an erect or slightly recurved point. Ovary very shortly stipitate, silky-hairy, with 10-12 ovules; style  $1\frac{1}{2}$  lines long, quite straight, with a capitate stigma. Pod not seen.

This species belongs to the section *Orthotropis*, and is allied to *C. cytisoides*, Turcz., from which it is distinguished by the smaller generally opposite or verticillate leaves, the deciduous bracteoles, the appressed indumentum of the calyx, the straight style, and fewer ovules.

I found this species in flower on sand-plains north-east of the Stirling Range in October, 1903.

**PULTENÆA BARBATA, n. sp. —**

**Nat. Ord. : Leguminosæ**

**Sub Ord. : Papilionaceæ**

An erect shrub of 2 feet with virgate branches, glabrous or slightly silky when young. Leaves alternate or scattered, narrow linear, 3-5 lines long, on very short petioles, minutely hispid and tuberculate, with closely revolute margins. Stipules suppressed. Flowers in heads or umbels apparently terminal, but with a short leafy shoot, slightly exceeding the flowers, in the middle of the umbel. Pedicels very short. Bracts not apparent even in the bud. Bracteoles linear-lanceolate, villous, persistent, inserted under and free from the calyx, 2-2 $\frac{1}{2}$  lines long. Calyx silky-villous, 2-2 $\frac{1}{2}$  lines long; the three lower lobes slightly longer than the tube, subulate;



the upper lobes broader and united higher up. Standard 3 lines long, broad, dark brown; wings slightly shorter and similar in colour; keel obtuse, slightly incurved, yellow. Ovary villous, tapering into a long incurved style, of which the lower part is villous all over, the upper incurved part glabrous except for a fringe of white silky hairs on the inner side. Pod not seen.

This species belongs to the section *Eupultenæa*. The habit, foliage, and style are like those of *Phyllota barbata*, Benth., but it has the free stamens and strophiolate ovules of *Pultencea*. Its nearest ally is perhaps *P. pinifolia*, Meissn., from which it differs in the shorter leaves, the absence of stipules, the persistent bracteoles, the narrow calyx-lobes, the smaller flowers, and the peculiar style.

I found this species in flower near the Phillips River in Oct. 1903.

**ACACIA COMETES, n. sp.—**

Nat. Ord.: Leguminosæ

Sub-Ord.: Mimoseæ

A low much-branched heath-like shrub; branches as well as phyllodia thickly clothed with spreading transparent hairs. Phyllodia crowded, scattered, clustered, or irregularly verticillate,  $\frac{3}{4}$ -1 $\frac{1}{2}$  inches long and under  $\frac{1}{2}$  line broad, but flattened and striate, acute, but not pungent. Peduncles axillary, generally in pairs, 2-4 lines long, with single globular heads of numerous small 5-merous flowers. Sepals free, thin, not half as long as the petals, linear. Petals connate to above the middle, obovate, thickened towards the tip, slightly hispid. Ovary glabrous. Pod not seen.

This species falls under the series *Brunioideæ*. It resembles *A. bruniades*, A. Cunn., and *A. conferta*, A. Cunn., in the arrangement, but differs from both in the shape, size, and indumentum of the phyllodia, and also in the short peduncles.

I found this species in flower on clay soil near Ravensthorpe on the Phillips River in October, 1903.

**ACACIA CAMPTOCLADA, n. sp.—**

Nat. Ord.: Leguminosæ

Sub-Ord.: Mimoseæ

A glabrous shrub of 2-3 feet with numerous flexuose branches. Branches terete, the smaller ones apparently angular from the adnate petioles. Phyllodia alternate, crowded, erect or spreading, inserted all round the branches, obliquely obovate, 3-4 lines long, and 1-1 $\frac{1}{2}$  lines broad, mucronate, rigid and glaucous, the mid-rib prominent, the divergent veins obscure; lower margin nearly straight, upper margin much curved with one or more glands. Peduncles solitary in the axils of the upper phyllodia, at first about as long as the phyllodia, but as the flowering advances elongated to  $\frac{1}{2}$ - $\frac{3}{4}$  inch and flexuose. Bracts brown, membranous, almost orbicular, persistent at the base of the peduncles. Flowers very small, in globular heads of 15-20, 5-merous. Sepals free, spatulate. Petals thin, connate to the middle but readily separating, with slightly prominent midribs. Pod not seen.

This species falls under the series *Uninerves*, sub-series *Brevifoliae*. The phyllodia are more or less erect, while the peduncles, as they become elongated, spread at right angles to the branch. The nearest ally is, perhaps, *A. undulifolia*, A. Cunn., from which it differs in the shape of the smaller flat phyllodia, in the longer peduncles, the smaller fewer flowers, and the free sepals.

I found this species in flower on red clay, near Dundas, in October, 1903.

**ACACIA EREMÆA, n. sp.—**

**Nat. Ord.: Leguminosæ**

**Sub-Ord.: Mimosæ**

A glabrous shrub or small tree of 8-10 feet, with pendulous branches, terete when mature. Phyllodia alternate, very glaucous, lanceolate, straight or falcate,  $1\frac{1}{2}$ -3 inches long, and 3-5 lines broad, narrowed into a short petiole at the base, and into a pungent point, often recurved, at the apex; thick and very rigid, with 3 prominent longitudinal nerves, finely striate between, with parallel veins. Peduncles in pairs in the axils, about  $\frac{1}{2}$  inch long, one-headed. Flowers small and numerous in the head, 4-merous. Sepals shortly connate at the base, linear-spathulate, sparingly ciliate, slightly more than half as long as the petals. Petals very thin, quite free, glabrous. Ovary sparingly silky-tomentose. Pod not seen.

This species falls under the series *Plurinerves*, and the sub-series *Oligoneuræ*. It is closely allied to *A. heteroclita*, Meissn., from which it differs in the arborescent habit, the pendulous branches, the more rigid grey phyllodia with veins between the prominent nerves, and the 4-merous flowers.

I found this species in flower on dry clay soil near Cue in July, 1903.

**ACACIA ANCISTROPHYLLA, n. sp.—**

**Nat. Ord.: Leguminosæ**

**Sub-Ord.: Mimosæ**

A low much branched glabrous shrub; branches terete, but branchlets angular. Phyllodia narrow-cuneate, mostly  $\frac{3}{4}$  inch long and  $1-1\frac{1}{2}$  lines broad, much narrowed at the base, with a recurved hook at the tip, striate, with numerous fine but not prominent parallel nerves; the margins with no gland. Peduncles axillary, solitary, 1-2 lines long, with a single head of numerous small flowers, mostly 5-merous. Sepals linear-spathulate, membranous, with dark tips, connate at the base, half as long as the petals; petals  $\frac{1}{2}$  line long, obovate, acute, connate at the base, with slightly prominent midribs. Ovary hispid. Pod not seen.

This species falls under the series *Plurinerves*, and the sub-series *Microneuræ*. It is near *A. leptospermoides*, Benth., differing in the hooked and more prominently nerved phyllodia, 4 merous flowers, and connate sepals. From *A. sclerophylla*, Lindl., and *A. ixiophylla*,

Benth., it differs in being neither resinous nor glutinous, in the less prominently nerved phyllodia, solitary peduncles, 4-merous flowers, and connate sepals.

I found this species in flower on red clay, near Dundas, in October, 1903.

**ACACIA LASIOCALYX, n. sp. —**

**Nat. Ord. : Leguminosæ**

**Sub-Ord. : Mimoseæ**

A slender shrub of 5-10 feet with long glabrous branches, at first angular, afterwards terete. Phyllodia mostly 5-8 inches long and 1-2 lines broad, much narrowed towards the base, falcate, with recurved points, somewhat glaucous, striate with numerous fine parallel nerves, the central one more prominent; rigid, but not very thick. Peduncles axillary, solitary or in pairs, about 3 lines long, bearing dense cylindrical flower-spikes, 1-1½ inches long. Flowers 5-merous. Calyx densely hirsute, yellow, the sepals connate for  $\frac{2}{3}$  of their length, with short glabrous tips. Corolla glabrous, not twice as long as the calyx; petals free, thin, without a prominent midrib. Pod not seen.

This species falls under the series *fulifloræ*, and the sub-series *falcate*. It is near *A. Doratoxylon*, A. Cunn., differing in the narrower thinner phyllodia, longer spikes, and hirsute calyx longer in proportion to the corolla.

I found this very handsome species in flower on sand plains near the Gairdner and Hammersley Rivers in October, 1903.

**THRYPTOMENE APPRESSA, n. sp. —**

**Nat. Ord. : Myrtaceæ**

A shrub of 2-4 feet with numerous erect virgate branches. Leaves pale green, erect and closely appressed, linear, quadrangular, furrowed above, 3-4 lines long, with prominent fine recurved points. Flowers solitary in the upper axils on very short pedicels. Bracteoles concave, prominently keeled, acute, as long as the calyx-tube, at length deciduous. Calyx-tube campanulate, scarcely 1 line long, with 5 obtuse not prominent ribs; lobes short, obtuse, entire. Petals 1 line in diameter, white. Stamens 10, inserted on the margin of the disk; filaments filiform, much incurved; anther-cells nearly globular; connective-gland almost as large as the cells. Style short, slightly immersed; stigma very small. Ovules 4, on a lateral placenta.

This species bears some resemblance in habit to *T. Australis*, Endl., but differs in the longer paler less crowded and more closely appressed leaves, the shape and ribs of the calyx-tube, and smaller flowers.

I found this species in flower on sand plains north of Esperance, in October, 1903.

**BAECKEA LATENS, n. sp. —**

**Nat. Ord. : Myrtaceæ**

A small shrub with slender branches. Leaves erect, linear-terete or slightly flattened, shortly acuminate, 3-4 lines long. Flowers sometimes solitary, but in other cases two or three together on a short peduncle;

pedicels about two lines long. Bracteoles linear-acuminate, persistent, scarcely half as long as the pedicels. Calyx-tube obtusely 5-angled. Lobes short, obtuse. Petals about 1 line in diameter. Stamens about 8, none opposite the centre of the petals; filaments short; anther cells united and deeply furrowed; connective gland small. Ovary 3 celled with about 10 ovules in each cell. Style immersed.

This species falls under the section *Oxymyrrhine*, and is closely allied to *B. uncinella*, Benth., from which it differs in the straight-pointed leaves, persistent bracteoles, the ribbed calyx-tube and fewer ovules.

I have a small fragment of this species among flowers gathered on the sand plains north of Esperance, in October 1903.

**EUCALYPTUS DIPTERA, n. sp.—**

**Nat. Ord.: Myrtaceæ**

A slender tree of 10-20 feet. Branches terete, of a dark-red colour; branchlets angular. Leaves on petioles of  $\frac{1}{2}$ -1 inch, linear-lanceolate, falcate, 3 inches long and  $\frac{1}{4}$ - $\frac{1}{2}$  inch broad, the midrib and thickened margins prominent, the reticulate veins not conspicuous, the intramarginal one close to the edge. Oil-glands copious. Flowers small, sessile, generally in clusters of three. Calyx tube about 4 lines long and equally broad, the lower part flattened and continuing to the top in the form of two wings. Operculum fallen from all my specimens. Stamens numerous, white, about 5 lines long, acutely inflected in the bud; anthers oblong, the cells back to back. Ovary with conical summit; style about three lines long, thick, clavate. Fruit not seen in advanced state.

This species belongs to the series *Normales*, and the sub-series *Subsessiles*. It does not appear to have any very close ally. The shape of the calyx is very peculiar; the rim is almost circular when seen from above, though the two sharp keels just appear, but the base is closely compressed, being 2-3 lines long, and only  $\frac{1}{2}$  line broad where it is attached to the branch.

I found this species in flower north of Esperance, in October 1903.

**HEMIGENIA EUTAXIOIDES, n. sp. —**

**Nat. Ord.: Labiatæ**

A straggling shrub of 2-3 feet with long virgate branches. Leaves opposite, erect, linear-terete, channelled above, about 3 lines long, obtuse, narrowed at the base but quite sessile. Pedicels solitary in the axils, very short. Bracts short, linear-subulate. Calyx about 2 lines long, turbinate, 15-striate; teeth equal, acute,  $\frac{1}{2}$  line long. Corolla white; upper lip 4-5 lines long, 2-lobed; lower lip as long, with 3 entire lobes. Anthers all with one perfect cell; the lower end of the connective with a small sterile cell in the lower stamens, but dilated and slightly bearded in the upper stamens. Style long, shortly bifid at the end. Nutlets rugose, attached above the middle.

This species in habit resembles *Eutaxia virgata*, Benth. It is nearly allied to *H. diplanthera*, F. v. M., but differs in the terete

leaves, striate calyx-tube, and the larger corolla with two lips of equal length, and the lobes of the lower lip entire.

I found this plant in flower a few miles south of Norseman in October, 1903.

**CASUARINA PRINSEPIANA, n. sp.**—

Nat. Ord.: Casuarineæ

A tree of 10-15 feet with stiff terete branches. Branchlets erect, glaucous, usually in pairs, and 4-6 inches long, slightly silky when young. Whorls 12-merous, teeth shortly acuminate and ciliate, internodes finely striate,  $\frac{1}{2}$ - $\frac{3}{4}$  inch long. Male amenta (not fully developed)  $\frac{1}{2}$  inch long; sheath teeth subulate imbricate. Cones ovate or depressed-globular, 1-1 $\frac{1}{2}$  inches long, shortly stipitate; valves much exerted with rounded points, back covered with long brown hair below, glabrous in the free part with two prominent ridges, obtuse and extending beyond the apex of the valve; occasionally there is a third shorter protuberance between the other two, adnate lower down and ending in a short point.

This species falls under *Leiopitys*, and is most nearly allied to *C. glauca*, Sieb., from which it differs in the stiffer habit, and the larger cones with two or three dorsal protuberances. It must be very similar in appearance to *C. bicuspidata*, Benth., but differs in the valves not pointed, and in the greater number of dorsal protuberances.

I found the tree in good quantity on rocky ground at Mullewa in July, 1903. It is named after Mr. Henry Prinsep, the Chief Protector of Aborigines, who takes a keen interest in all branches of Natural History.

## II.

### Species already Described, but hitherto unrecorded from Western Australia.

**AOTUS VILLOSA, Smith.**—

Marshy flats, Torbay Junction, near Albany. Fl. and fr. Dec. 1902.—C. R. P. A.

Mr. W. V. Fitzgerald has had fruiting specimens sent from the same district. They differ from the eastern plant in the ovary being almost or quite sessile.

This species has now been recorded from all the States, including Tasmania,

**CALOTIS CUNEIFOLIA, R. Br.**—

Dry clay, close to Cue, July 1903.—C. R. P. A.

This species has now been recorded from all the mainland States.

My specimens are annuals, and have only two spines on the calyx. As described by Bentham, the species is a perennial, and the calyx has three spines. Mr. Fitzgerald informs me that in N.S.W. the spines are constantly three, in Victoria they vary from two to three, and in S.A. the two-spined form is rather commoner than the other.

## Notes on some West Australian Species of Acacia.

(By W. V. FITZGERALD, F.S.Sc., Lond., F.R.H.S., Engl.)

*A. glaucoptera*, Benth.—Petals with obscure midribs.

*A. alata*, R. Br.—Petals with slightly thickened centre. Pod  $1\frac{1}{2}$ -2 inches long. Seeds ovate, brown; funicle thick, terminating in a somewhat clavate pale-coloured basilar arillus.

*A. diptera*, Lindl. (Stems broadly winged.) Flower heads racemose. Flowers 5-merous, glabrous. Pod 2 inches long,  $\frac{1}{2}$  inch across, quite glabrous, not contracted between the seeds; valves prominently reticulated. Seeds ovate, compressed, shining black, in the centre of the pod; funicle rather thick, terminating in a pale-colored clavate basilar arillus. This constitutes the type. Var *erioptera*, Graham.—The hairy character relied on is most unstable, and certainly not of varietal value. Var. *eriocarpa*, W. V. F.—(Stems narrowly winged.)—Flower heads solitary or in pairs. Flowers constantly 4-merous, otherwise as in type. Pod slightly narrow, the valves hispid with coarse white hairs. Seeds almost globular, black, arillar appendage as in type.

*A. stenoptera*, Benth.—Calyx lobes rather broad, ciliate. Petals free to below the middle. Pod (excluding the stipes)  $1\frac{1}{2}$ -2 inches long, glabrous, not constricted between the seeds. Seeds oblique, ovate, dull-black, funicle short, terminating in a broadly turbinate, or almost cupular pale-colored basilar arillus.

*A. incurva*, Benth.—Calyx with short ciliate lobes. Petals with or without a faint midrib, connate to the middle. Pod linear-terete, incurved, acuminate, tapering to the base, hard, 2-3 inches long, not contracted between the seeds; valves sulcate-striate, sparingly hirsute. Seeds longitudinal, oblong, shining brown; funicle slender, terminating in a turbinate slightly oblique pale-colored basilar arillus.

*A. latipes*, Benth.—A shrub of 3-4 feet in height. Phyllodia falcate, mostly  $\frac{3}{4}$  inch long, 2 lines broad. Peduncles 4-6 lines long. Flower-heads ovoid. Sepals free or shortly connate, hirsute. Petals slightly hispid, midribs not prominent.

*A. cochlearis*, Willd.—See *A. heteroclita*, Meiss.

*A. colletioides*, A. Cgh.—Spreading shrub of 10-15 feet high. Pod 2-3 inches long.

*A. striatula*, Benth.—Diffuse, 2 feet high. Sepals ciliate, half as long as the petals, the latter quite free. Ovary tomentose. Pod linear terete, falcate, sulcate-striate, glabrous or slightly scabrous,  $1-1\frac{1}{2}$  inch long, not contracted between the seeds, sutures not prominent. Seeds longitudinal, oblong, shining-black; funicle long, slender and much twisted, terminating in an irregularly obliquely-turbinate white basilar arillus nearly  $\frac{1}{3}$  as long as the seed.

*A. teretifolia*, Benth.—Sepals nearly half as long as the petals, hispid and ciliate. Petals connate below the middle or almost free. Pod often recurved, slightly twisted laterally. Seeds longitudinal, oblong-ovate, brown and scarcely shining; funicle thickened into a narrow-turbinate or almost cylindrical pale-yellow basilar arillus  $\frac{1}{3}$  as long as the seed.

*A. barbinervis*, Benth.—Phyllodia often  $1\frac{1}{4}$  inch long. Calyx  $\frac{1}{2}$  as long as the petals, the latter connate to the middle. Pod linear-compressed, terete, incurved, sulcate-striate, sparingly hirsute, mostly  $1\frac{1}{2}$  inch long, hardly contracted between the seeds, sutures not prominent. Seeds longitudinal, oblong-ovoid and thick, dull-brown; funicle short, filiform, terminating in a broadly turbinate slightly oblique pale-yellow basilar arillus at least half as long as the seed.

*A. Baxteri*, Benth.—Sepals shortly connate at the base, ciliate. Petals connate to half their length. Pod linear-terete, tapering into a fine point, shortly stipitate,  $2-2\frac{1}{2}$  inches long, not contracted between the seeds. Seeds longitudinal, ellipsoid; funicle short, not twisted, terminating in a thick turbinate basilar arillus.

*A. auronitens*, Lindl.—Sepals slightly ciliate,  $\frac{1}{4}$  as long as the petals or shorter, the latter connate to the middle and slightly hispid. Pod straight or falcate, glabrous,  $1-1\frac{1}{2}$  inch long. Seeds oblique, dark-brown; funicle terminating in a pale-yellow basilar arillus.

*A. quadrisulcata*, F. v. M.—Sepals ciliate. Seeds oblique; funicle expanding into an obliquely hood-shaped basilar arillus.

*A. laricina*, Meiss.—Sepals ciliate. Petals glabrous. Pod incurved, almost linear-terete, mostly  $1\frac{1}{2}$  inch long. Seeds longitudinal, oblong-ovate and thick; funicle terminating in a broadly cupular basilar arillus.

*A. genistoides*, A. Cgh.—Sepals ciliate. Petals connate nearly to the middle. Pod glabrous, much contracted between the seeds; arillar appendage basilar.

*A. sphacelata*, Benth., var. *sessilis*.—Sepals ciliate. Petals connate nearly half their length, with slight midribs. Seeds slightly oblique, obovate, shining-grey; funicle short, thickened into a pale-yellow boat-shaped basilar arillus, extending unilaterally to half the length of the seeds.

*A. patens*, F. v. M.—Sepals  $\frac{1}{4}$  as long as the petals, the latter smooth. Seeds almost oval-oblong; funicle thickened from the base but forming a distinct arillus.

*A. tetragonocarpa*, Meiss.—Calyx shortly lobed. Ovary tomentose.

*A. restiacea*, Benth.—Petals connate to the middle, and with evident midribs. Pod as described by Lehmann and 3-4 inches long. Seeds longitudinal, ovate, shining-black; funicle expanding into an obliquely cupular, white membranous basilar arillus extending unilaterally to one-third the length of the seed.

*A. Bynoeana*, Benth.—Flowers hirsute, petals sometimes twice as long as the sepals. Pod 2-2½ inches long; funicle thickened into an irregular oblique basilar arillus.

*A. triptycha*, F. v. M.—Phyllodia often with a conspicuous thickening below the recurved apex, the whole somewhat hirsute or scabrous. Sepals connate at the base, ciliate, half as long as the petals, the latter connate to above the middle. Ovary glabrous. Pod linear, flat, straight or slightly laterally twisted, smooth, about 2 inches long, slightly constricted between the seeds. Seeds longitudinal, oblong; funicle terminating in an obliquely unilateral almost boat-shaped arillus,

*A. leptoneura*, Benth.—Phyllodia 2-4 inches long, the apex finely hairy. Peduncles mostly about 2 lines long. Sepals ciliate, with dark tips, ⅔ as long as the petals. Pod distinctly stipitate, linear, straight or slightly flexuose, much compressed, glabrous, about 2 inches long, 2½ lines broad, not constricted between the seeds; valves thin. Seeds longitudinal, obovate, shining, dark-brown; funicle short but thick, expanding into a broad-linear, white basilar arillus, extending unilaterally to half the length of the seed.

*A. scirpifolia*, Meiss.—Erect, 10-15 feet high. Calyx-lobes slightly ciliate. Petals connate to or above the middle, with slight midribs. Pod 3 inches or more in length. Seeds brown; funicle thickened into a small almost clavate dark-coloured basilar arillus.

*A. extensa*, Lindl.—Phyllodia 1-1½ lines broad, often slightly scabrous. Calyx half as long as the petals, lobes slightly ciliate. Petals with slight midribs. Pod 3-4 inches long, glabrous. Seeds shining dark-brown; funicle rather long, at first filiform, then gradually thickened into a broadly turbinate crenulated pale-colored basilar arillus.

*A. gonophylla*, Benth.—Sepals free, ciliate, linear-spathulate. Petals connate to the middle. Pod mostly 2 inches long. Funicle long, terminating in a broad cupular basilar arillus.

*A. ericifolia*, Benth.—Phyllodia often linear-spathulate and thick. Peduncles ½-¾ inch long. Sepals slightly ciliate, half as long as the petals, the latter with an apparent midrib. Young pod terete and tomentose, when mature linear, falcate, glabrous, 1-1½ inch long, 1½-2 lines broad, flat, hardly constricted between the seeds, sutures thickened. Seeds longitudinal, ellipsoid, brown; funicle slender, terminating in a short broad pale-colored basilar arillus.



*A. cedroides*, Benth.—Calyx one-third as long as the petals, ciliate. Pod glabrous.

*A. scabra*, Benth.—Phyllodia with almost a pungent point. Stipules rather conspicuous, setaceous, caducous. Peduncles slightly exceeding the phyllodia, about 6 lines long.

*A. ulicina*, Meiss.—Calyx deeply lobed; lobes ciliate. Petals connate to the middle. Pod  $1\frac{1}{2}$ -2 inches long, glabrous; valves convex on the seeds. Seeds almost longitudinal, shining-black; funicle slender, gradually thickened into an almost boat-shaped pale-yellow arillus touching the base of and extending unilaterally to nearly the length of the seed.

*A. erinacea*, Benth.—Peduncles  $\frac{1}{2}$  inch long. Calyx slightly ciliate. Petals connate to the middle, with rather conspicuous mid-ribs. Pods few-seeded, about 1 inch long by half as broad, flat, glabrous; valves coriaceous. Seeds obliquely transverse, in the centre of the pod, oblong; funicle long, filiform, with several folds, terminating in a clavate pale-coloured basilar arillus, extending unilaterally along the seed.

*A. Huegelii*, Benth.—Pod oblong, falcate, with nerve like margins, mostly 1-inch long, 3 lines broad; valves coriaceous, very convex, striate, pubescent. Seeds oblique, almost ovate, shining black; funicle slender, gradually thickened into a conspicuous cupular basilar arillus. A form occurs at Arrino with broad lanceolate phyllodia, falcate; stipules spinescent, persistent and attaining a length of 2 lines, otherwise as in type.

*A. nervosa*, De Cand.—Pod oblong, thick but flat, twisted laterally, glabrous, sutures prominent,  $1-1\frac{1}{2}$  inches long, 3 lines broad, not contracted between the seeds; valves coriaceous.

*A. obovata*, Benth.—Pod linear, falcate, flat but very thick, with thick sutures (almost quadrangular), slightly twisted, glabrous,  $2-2\frac{1}{2}$  inches long,  $2\frac{1}{2}$ -3 lines broad, not constricted between the seeds; valves almost woody. Seeds longitudinal, ellipsoid, shining dark-brown; funicle filiform, ultimately thickened into a large cupular pale-yellow basilar arillus.

*A. congesta*, Benth.—A spreading shrub of 3-5 feet high. Petals connate to above the middle. Pod glabrous. Seeds nearly orbicular, black, with a pale-colored arillus.

*A. armata*, R. Br.—Branches and phyllodia scabrous.

*A. pilosa*, Benth.—Peduncles often longer than the phyllodia. Pod about one inch long, and  $\frac{1}{3}$  as broad, seeds transverse, ovate-oblong; funicle short, straight, terminating in a small clavate basilar arillus.

*A. crassistipulea*, Benth.—Phyllodia obliquely ovate, oblong, with short recurved points,  $\frac{1}{2}$  inch long; stipules similar, but from  $1\frac{1}{2}$ -3 lines long. Calyx slightly hirsute. Pod narrowly oblong, flat, undulate,

densely hirsute, 1-1½ inch long, 3 lines broad, not contracted between the seeds, sutures prominent. Seeds oblique, ovate-oblong, black; funicle slender, gradually thickened into a clavate basilar or slightly lateral-colored arillus.

*A. horridula*, Meiss.—Calyx lobes ciliate. Petals free almost to the base, with inconspicuous midribs. Pod linear, semi-terete, falcate, 1½-2 inches long, striate, sparingly hirsute, not contracted between the seeds; valves coriaceous. Seeds longitudinal, narrow-oblong, brown and shining; funicle terminating in a dark-colored turbinate basilar arillus.

*A. divergens*, Benth.—Calyx slightly hispid; lobes ciliate. Petals almost or quite free to the base, with slight midribs.

*A. biflora*, R. Br.—Petals with acute points.

*A. decipiens*, Benth.—Calyx lobes slightly ciliate. Seeds greyish, the funicle tapering into a large turbinate basilar arillus.

*A. cuneata*, Benth.—Calyx lobes ciliate. Petals free, glabrous, with slight midribs. Pod glabrous or hispid, slightly constricted between the seeds. Seeds longitudinal, oblong, brown; funicle gradually thickened into a pale-colored, broad-linear basilar or slightly oblique arillus.

*A. bidentata*, Benth. —Petals connate to ¾ of their length, slightly hispid, midribs inconspicuous. Pod much incurved, sometimes spirally twisted, 1-1½ inch long, 1-1½ lines broad, glabrous, not constricted between the seeds; valves flat.

*A. acanthoclada*, F. v. M.—Plant slightly hirsute. Peduncles longer than the phyllodia. Flowers 5-merous. Calyx smooth, turbinate, lobed to the middle  $\frac{1}{4}$ - $\frac{1}{6}$  as long as the petals, the latter connate to the middle, midribs slight. Ovary glabrous: style lateral. Pod linear, much curved or spirally twisted, flat, 1½-2 lines broad, not contracted between the seeds. Seeds longitudinal, oblong; funicle short, thickened into a somewhat lateral boat-shaped arillus.

*A. anceps*, A. De Cand. —Calyx not much shorter than the corolla, hirsute, lobes ciliate. Pod hardly contracted between the seeds. Seeds transverse, oblong; funicle much folded from the base, one fold extending unilaterally beyond the summit of the seed and ultimately terminating in an obliquely cupular basilar arillus.

*A. spathulata*, F. v. M. Peduncles ½ inch long, bearing each a head of 12-15 flowers, all 5-merous. Buds very obtuse. Calyx truncate or shortly sinuately lobed, ciliate,  $\frac{1}{3}$  as long as the petals. Petals connate to the middle or lower down, finely striate, with evident midribs. Pod glabrous, with a gland-like apex. Seeds often slightly oblique; funicle terminating in a membranous margined, often crenulated, broadly cupular basilar arillus, which extends obliquely to half the length of the seed.

*A. Sentis*, F. v. M.—Sepals ciliate, half as long as the petals, the latter free. Pod sometimes laterally twisted, 2-3 inches long. Seeds almost transverse; funicle much folded and thickened, terminating in a basilar arillus.

*A. dentifera*, Benth.—Branches slightly scabrous. Calyx and corolla finely pubescent. Pod almost terete, slightly scabrous. Seeds shining dark-brown; funicle thickened into a yellow basilar arillus.

*A. microbotrya*, Benth.—Plant 6-ft. high: Phyllodia mostly 1-1½ inches long, linear-lanceolate, often glaucous; Cunderdin. Plant 15-20-ft. high: Phyllodia 3 inches long, broad-lanceolate; pod 4-8 inches long, 2-3 lines broad, flat, contracted between the seeds; Pingelly and Arrino.

*A. leiophylla*, Benth.—Phyllodia 6-8 inches long. Petals connate to the middle, with slight midribs.

*A. cyanophylla*, Lindl.—Young shoots slightly hirsute. Phyllodia sometimes 4 inches long by 1½ inch broad, ovate-lanceolate, merging into the ordinary form. Calyx lobes spatulate, ciliate. Petals narrow, connate to the middle. Pod 3-4 inches long, glabrous. Seeds brownish, with a pale-colored basilar arillus.

*A. salicina*, Lindl.—Young shoots sometimes pubescent.

*A. notabilis*, F. v. M.—Funicle terminating in a cupular slightly lateral arillus.

*A. rostellifera*, Benth.—Enveloping floral bracts broadly ovate, striate. Flowers in heads of 25-30, forming racemes of 6-8 or more, numerous and paniculate through foliage suppression. Calyx slightly lobed, ciliate, ½ as long as the petals, the latter connate to above the middle. See next species.

*A. crassiuscula*, Wendl.—To this species should be referred *A. subbinervia*, Meiss., and Bentham's *A. crassiuscula* and *pycnophylla*. The Swan River and Rottneest Island plant cannot be distinguished by any tangible character from the southern *A. pycnophylla*. The form of *A. rostellifera* with binerved phyllodia is common, but unstable as bi- and uninerved phyllodia sometimes occur on the same plant; the other characters are quite those of *A. pycnophylla*. The northern (Geraldton) examples only differ from the Swan River and southern specimens in there being twice as many flowers in the heads, the inflorescences often becoming paniculate, and in the proportionately shorter calyx. Bentham describes the calyx of his *A. rostellifera* as being truncate. In the numerous examples examined I found it distinctly lobed. Since the publication of the "Flora Australiensis" it has been proved that Meissner correctly referred Preiss's southern specimens to *A. crassiuscula*, Wendl.

*A. Harveyi*, Benth.—Twenty feet high, and somewhat glaucous. Calyx turbinate, with short ciliate lobes. Petals connate to the middle. Pod 6 inches long, ¾ inch across, constricted between the seeds, the valves convex over them and glaucous. Seeds longitudinal, almost

ovate; funicle extending unilaterally  $\frac{2}{3}$  round the seed, then returning and terminating in a clavate somewhat obliquely lateral arillus.

*A. Graffiana*, F. v. M.—Sepals and petals readily separable, or free almost to the base. Pod linear, about 2 inches long, 2 lines broad, several times folded inwards. Seeds shining black; funicle slightly thickened, but hardly forming a slightly lateral arillus.

*A. leptopetala*, Benth.—Sepals connate at the base, ciliate, more than half as long as the petals. Ovary glabrous. Funicle terminating in a much folded clavate basilar arillus.

*A. pyrifolia*, De Cand.—Sepals smooth, petals connate to above the middle,  $\frac{1}{3}$  longer than the sepals, dark-colored, with an indistinct midrib. Ovary glabrous. Seeds longitudinal; funicle thickened upwards, but hardly forming a basilar arillus.

*A. myrtifolia*, De Cand.—*Var. Angustifolia*.—Calyx lobes ciliate. Petals with slight midribs. Pod 2  $\frac{3}{4}$  inches long. Seeds very dark-green, shining; funicle terminating in a cupular yellowish-white basilar arillus.

*A. scalpelliformis*, Meiss.—Flowers 5-merous. Calyx broadly turbinate, very short, with broad ciliate lobes. Petals free, with slight midribs. Ovary tomentose, style hirsute. Funicle terminating in a linear-clavate basilar arillus.

*A. urophylla*, Benth. Peduncles filiform, often nearly one inch long. Calyx broadly lobed  $\frac{1}{3}$  of its length; lobes slightly ciliate. Petals connate to the middle, with slight midribs. Pod often 9 inches long, 2 lines broad, much twisted laterally and often almost quadrangular. Seeds shining dark-brown; funicle thickened into a dark-colored arillar appendage clasping the whole of the base of the seed.

*A. bipinosa*, De Cand.—Phyllodia often 3-nerved. Pod linear, falcate or flexuose, glabrous, 3-4 inches long, 2-3 lines broad, contracted between the seeds, with the valves convex over them. Seeds longitudinal, oblong, black; funicle thickened into a clavate pale-colored basilar arillus.

*A. heteroclita*, Meiss.—Phyllodia varying from linear-lanceolate with innocuous straight or curved points to linear, rigid, with straight pungent points. Sepals connate at the base, ciliate, with dark-colored tips, at least half as long as the petals, the latter with slight midribs. Ovary slightly hirsute. Pod glabrous, hardly contracted between the seeds. Seeds ellipsoid, shining dark-brown, funicle thickened into an almost hood-shaped, pale-colored, somewhat lateral arillus. After an examination of numerous flowering and fruiting specimens of the above species and *A. cochlearis*, Willd., it is evident to me that the latter should include Meissner's species.

*A. Oswaldi*, F. v. M.—Branchlets often slightly viscid. Sepals shortly connate, ciliate and slightly pubescent, half as long as the petals. Ovary tomentose. Pod sometimes spirally twisted. Seeds

shining; funicle short, terminating in an orange-colored basilar arillus which extends unilaterally to half the length of the seed.

*A. lineolata*, Benth.—Petals with slight midribs.

*A. coriacea*, De Cand.—Petals hoary. Ovary tomentose. Seeds obliquely-ovate; funicle thickened into a large obliquely-boatshaped almost lateral arillus.

*A. heteroneura*, Benth.—A diffuse shrub of 10 feet in height; branchlets hardly or not at all angular, slightly hoary. Floral bracts ciliate. Calyx nearly half as long as the petals, slightly hirsute. Petals connate to half their length, midrib prominent. Pods and seeds of *A. quadrimarginea*, F. v. M. The latter species, of which the flowers have not been described, does not appear to be specifically distinct from *A. heteroneura*.

*A. cyclopis*, A. Cgh.—Calyx deeply lobed or only shortly toothed; ciliate.

*A. cochliocarpa*, Meiss.—Sepals half as long as the petals. Ovary tomentose. Seeds longitudinal, oblong; funicle terminating in a slightly crenulated irregularly cupular basilar arillus,  $\frac{1}{3}$  as long as the seed.

*A. ephedroides*, Benth.—Phyllodia sometimes pubescent. Calyx slightly pubescent,  $\frac{1}{2}$  as long as the corolla.

*A. cyperophylla*, F. v. M.—Calyx usually lobed to the middle; lobes ciliate. Petals connate to or above the middle. Pod long-linear, slightly constricted between the seeds, 4-6 inches long; valves convex, pubescent. Seeds oblique, oblong; funicle rather long and much folded from the base, hardly thickened into a linear basilar arillus.

*A. multispicata*, Benth.—Shrub of 6 feet in height. Petals with apparent midribs.

*A. oncinophylla*, Lindl.—Diffuse shrub, 3-5 feet high. Pod 2-3 inches long,  $1\frac{1}{2}$ -2 lines broad, closely invested with appressed yellowish hairs. Seeds longitudinal, oblong, dark-brown; funicle thick, terminating in a somewhat flattened pale-coloured basilar arillus.

*A. aneura*, F. v. M.—Phyllodia lanceolate to linear. Sepals shortly connate at the base, quite glabrous or ciliate,  $\frac{1}{3}$  as long as the petals, the latter connate to  $\frac{2}{3}$  of their length. Pod slightly viscid. Seeds oblique; funicle terminating in an irregularly-shaped compressed basilar arillus.

*A. Doratoxylon*, A. Cgh.—Petals connate to the middle. Ovary glabrous; style excentrical. Pod linear-terete, slightly flexuous, 4 inches or more in length, 2 lines broad, glabrous, slightly contracted between the seeds. Seeds longitudinal, oblong or ellipsoid, shining-black; funicle much folded and thickened from the base and terminating in a small irregularly clavate pale-colored basilar arillus.

*A. acuminata*, Benth.—Phyllodia with a hooked apex, the margins often ciliate. Flowers frequently 4-merous. Sepals slightly connate, ovate, ciliate, half as long as the corolla. Petals nearly free, rather broad, often slightly hirsute, with evident midribs. Ovary tomentose. Pod 3-4 inches long, glabrous. Seeds black; funicle thickened into a large pale-colored basilar arillus.

*A. pulchella*, R. Br.—Leaflets sometimes under 1 line long, with the margins so revolute as to appear terete. Calyx-teeth ciliate. Petals connate to  $\frac{1}{3}$  of their length. Pod sometimes hirsute, and flexuose. Seeds ovate, shining-black; funicle thickened into a pale-colored basilar arillus.

*A. nigricans*, R. Br.—Common petiole  $\frac{1}{2}$ -1 inch long. Peduncles sometimes clustered, mostly 1 inch long. Calyx half as long as the petals, the latter connate to  $\frac{1}{3}$  of their length.

*A. strigosa*, Link.—Type: Calyx hirsute, divided to the middle; petals connate to half their length; pod hirsute; seeds shining black; funicle terminating in a small pale-coloured basilar arillus. A form: Pinnae 2-4 pairs; leaflets 2-4 lines long, often revolute at the margins; flowers in heads of 25-30; bracts linear spatulate, ciliate; calyx turbinate, pubescent and slightly streaked,  $\frac{2}{3}$  as long as the corolla, the latter divided to  $\frac{1}{3}$  of its length; pod hirsute, usually 1-1 $\frac{1}{2}$  inch long. This form is apparently intermediate between *A. strigosa*, Link, and *A. obscura*, De Cand.

*A. Drummondii*, Lindl.—Corolla divided to  $\frac{1}{3}$  of its length. Seeds dark-brown; funicle thickened into a clavate, pale-colored basilar arillus.

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The notes are additional to the descriptions of species as published in the "Flora Australiensis." Although, in the main, Bentham's diagnoses are remarkably accurate, yet, in several instances, important corrections have had to be made.

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## Note on the so-called *Boronia Purdieana*, Diels.

(By W. V. FITZGERALD, F.S.Sc., Lond., F.R.H.S., Engl.)

HAVING been supplied with a copy of the description of Dr. Diels's new species, and compared the diagnosis with that of *B. tetrandra*, Labill., as published by Bentham in the "Flora Australiensis," vol. 1, page 316, I failed to discern any tangible differences. Dr. Diels remarks that his new species differs in the floral coloration, and essentially in the staminal structure and in the stigma. Bentham, as with all botanists conversant with Australian vegetation, placed little reliance on such an unstable character as floral coloration, so did not in this instance, as in many others, mention it. The staminal characteristics in both diagnoses are identical, and the detail in reference to the shape of the stigmatic lobes is omitted by Bentham. As I had been in the habit of referring Dr. Diels's new species to *B. tetrandra*, Labill., immediately on receiving a copy of his diagnosis, I took steps to verify my conclusions. Fresh examples were obtained from Muchea, and forwarded by me to the Royal Botanic Gardens, Kew, and to the Jardin des Plantes, Paris. The Director of the former (Sir W. Thiselton-Dyer) in reply stated that Labillardière's type was not at Kew, but on comparison he found the Muchea plant identical with the specimens named *B. tetrandra*, by Bentham. In the second case, M. Jul. Paisson stated that having no type of Labillardière's in their museum, he forwarded my specimen to M. C. Decandolle, of Geneva, for comparison with the type at the Herbarium du Prodromus. That gentleman had no hesitation in declaring them identical.

I must take exception to Dr. Diels's geographical remarks. According to "Eden's History of New Holland (1787)" the whole of the southern portion of Western Australia, extending to a considerable distance W. of King George's Sound was discovered during 1627 and named Nuyts Land. From its Western limit N. to midway between Cape Leeuwin and Geographe Bay was discovered during 1622 and named Leeuwin's Land. D'Entrecasteux, whom Labillardière accompanied, examined the coast from Leeuwin's Land, along Nuyts Land

to near the present South Australian border during 1792. As the charts in use at the time were identical with those referred to in Eden's work, I fail to understand how Dr. Diels arrives at the conclusion that Leeuwin's Land "means the whole southern portion of the State of Western Australia."

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Since writing the above it has been brought under my notice that Mr. R. Cheeseman, of the Brighton Nurseries, Victoria, raised *Boronia tetrandra*, Labill., from seeds supplied from the Midland Districts. He describes it as a novelty under the name of *B. lutea*.

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[After the above was in print I received a letter from Dr. Diels enclosing figures of his *B. Purdieana*, and also of the Esperance plant which he calls *B. tetrandra*. From these figures it is quite evident that Dr. Diels has two distinct species, closely alike in general appearance, but differing widely in the stamens and pistil. His identification of this Esperance plant with *B. tetrandra* is the result of a comparison with a specimen of Drummond's 5th Coll., No. 200, to which Bentham refers as *B. tetrandra*. It is therefore evident that a mistake has been made in the European Herbaria owing to the general resemblance between two distinct plants. It appeared to me that the most probable error was in Bentham's identification of Drummond's plant with Labillardière's. This would mean that the well-known plant of Perth district is rightly considered to be *B. tetrandra*, Labill., while the Esperance plant (which Dr. Diels calls *B. tetrandra*) is an undescribed species, though collected by Drummond. I sent the letter and figures to Mr. Fitzgerald, who writes as follows:—

"Bearing in mind that Bentham did not dissect any flowers of Labillardière's type, and that his description of *B. tetrandra* is quite that of Diels's new species, it is open to question whether the type of Drummond's 5th coll. referred to by Diels is identical with the specimens named *B. tetrandra* by Bentham and now at Kew. The fact of examples of one or more species being sent in a collection is no proof of their having been gathered in the same locality as the bulk of the collection (*vide* Drummond's letters to Sir W. J. Hooker.) I would suggest that Dr. Diels have a comparison made between the specimens referred by him to *B. tetrandra* and those at Kew and the Herbarium du Prodromus. On this being done I am convinced that he will find his *B. tetrandra* is an undescribed species and his *B. Purdieana* the *B. tetrandra* of Labillardière. I am not prepared to admit *B. Purdieana* as distinct from Labil-



lardièrè's species until Dr. Diels can prove that Bentham, Mueller, Sir W. Thiselton-Dyer and M. De Candolle are in error. Dr. Diels's geographical slip has already been referred to by me. Since then I have examined the map which accompanies Labillardière's narrative of his voyage. This further disproves the former's assumption that the S.E. coast was known to the latter other than as Terre de Nuyts. In the notes accompanying the diagnosis of Diels's new species he refers to *B tetrandra*, Labill., as having white flowers. I may remark that De Candolle during 1824 published a description of the species (as drawn from the type) in which the flowers are described as purplish. The specimens of the *Muchea* plant as sent by me to Europe had the petals purplish outside and yellow within, a coloration often assumed as the flowering advances."—EDITOR.]







